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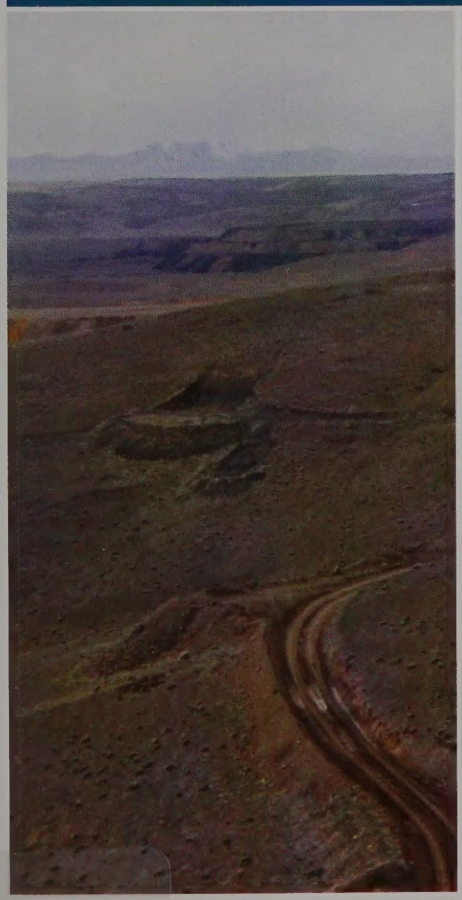
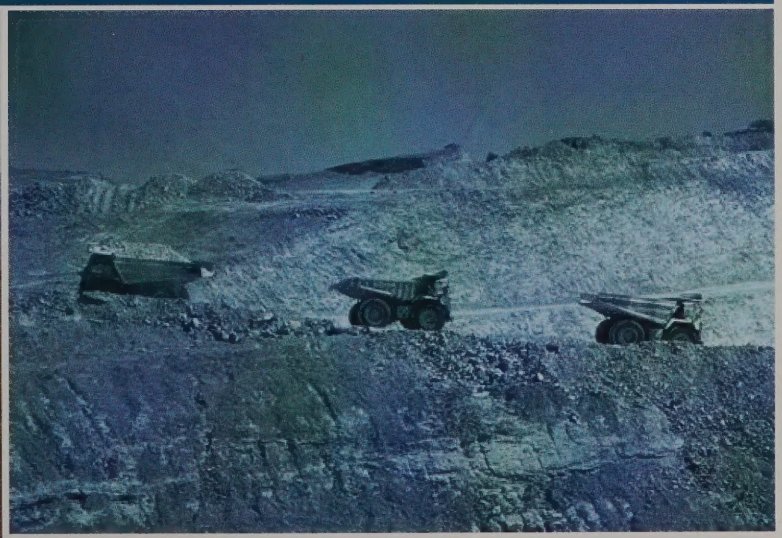
FINAL

ENVIRONMENTAL IMPACT STATEMENT
GENESIS PROJECT
NEWMONT MINING CORPORATION





March 2011

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Elko District Office - Nevada

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Elko District Office
3900 East Idaho Street
Elko, Nevada 89801
http://www.nv.blm.gov

TAKE PRIDE IN AMERICA

In Reply Refer To:
3809 (NV-013)
NVN-070712

Dear Reader:

Enclosed for your review is the Genesis Project Final Environmental Impact Statement (EIS) prepared by the Bureau of Land Management, Elko District Office. The Final EIS, in conjunction with the Draft EIS, analyzes the direct, indirect, and cumulative impacts associated with the proposed extended mining activities at Newmont Mining Corporation's Genesis-Bluestar Operations Area in Eureka County, Nevada.

The Final EIS has been prepared in an abbreviated format and must be used in conjunction with the Draft EIS issued in April 2010. The Draft and Final EISs constitute the complete EIS. The Final EIS includes responses to comments received during the public review period on the Draft EIS and revisions to the Draft EIS.

Following a 30-day Final EIS availability period, a Record of Decision (ROD) will be published. The decision reached in the ROD is subject to appeal to the Interior Board of Land Appeals. The 30-day appeal period starts with the publication of the ROD. No action, based on the decision published in the ROD, will begin until after the ROD has been issued.

Your interest in management of public land is appreciated. If you have any questions, please contact Kirk Laird at (775) 753-0272.

Sincerely,

David Overcast
Field Manager
Tuscarora Field Office

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FINAL
ENVIRONMENTAL IMPACT STATEMENT
GENESIS PROJECT
NEWMONT MINING CORPORATION

LEAD AGENCY:

U.S. Department of the Interior
Bureau of Land Management
Elko District Office
Elko, Nevada

COOPERATING AGENCIES:

Nevada Department of Wildlife
Elko County

PROJECT LOCATION:

Eureka County, Nevada

COMMENTS ON THIS FINAL EIS SHOULD BE DIRECTED TO:

Kirk Laird, EIS Project Manager
Bureau of Land Management
Elko District Office
3900 East Idaho Street
Elko, NV 89801
(775) 753-0200

DATE BY WHICH COMMENTS MUST BE POSTMARKED TO BLM:

Within 30 days of the date of the Notice of Availability published in the Federal Register

ABSTRACT

This Final Environmental Impact Statement (EIS) analyzes potential impacts associated with Newmont Mining Corporation's proposal (the Genesis Project) to amend the Genesis-Bluestar Plan of Operations (NVN-70712). The Genesis Project, submitted in November 2007, includes development and operation of open pit mines and associated support facilities located within the previously permitted boundary for the Genesis-Bluestar Operations Area, which is located approximately 20 miles north of Carlin, Nevada. The Genesis Project proposes expansion of existing mine pits and development of the Bluestar Ridge open pit mine, in-pit backfill of the Beast and Bluestar pits, partial backfill of the Genesis pit, vertical expansion of the Section 5 and Section 36 Waste Rock Disposal facilities, reclamation of surface disturbances in the Genesis Project area, and extension of employment for twelve years. Under the Proposed Action, approximately 43 acres of new disturbance would occur within the previously permitted Genesis-Bluestar Operations Area. The Genesis Project would have a twelve-year operational mine life and produce approximately 60 million tons of ore and 450 million tons of waste rock. An average of approximately 867 persons, each year during the 12-year mine life, would be employed as a result of the Genesis Project. Closure activities may continue for a period of up to 30 years after mining activity is completed.

Responsible Official for Final EIS:

David Overcast
Field Manager
Tuscarora Field Office

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P.O. Box 25047
Denver, CO 80225

The Proposed Action would modify the existing approved reclamation and closure plan to allow backfill of mined-out pits. Waste rock generated during expansion of the Genesis Pit would be used to completely backfill the Bluestar and Beast pits, and partially backfill the Genesis Pit, reducing the area that would have remained as open pits under the No Action Alternative by approximately 300 acres.

Approximately 450 million tons (Mt) of waste rock would be removed to extract 60Mt of ore over a twelve-year operational life. Approximately 48.3Mt of oxide leach ore would be placed on the existing North Area Leach Facility and 11.7Mt of mill and refractory ore would be hauled to Mill 5/6 in the South Operations Area.

A Waste Rock Management Plan describing the methods, procedures, design, monitoring, and reporting that Newmont would use in managing waste rock associated with proposed mine expansion of the Genesis Project has been submitted to the Nevada Division of Environmental Protection (NDEP) as an amendment to its Water Pollution Control Permit (WPCP NEV0087065). In addition, Newmont, BLM, and the Environmental Protection Agency (EPA) developed an Adaptive Management Plan (AMP) for Waste Rock to confirm predicted waste rock behavior associated with development of the proposed Genesis Project. The AMP identifies ongoing waste rock characterization work, future waste rock monitoring associated with the Project, and actions that could be employed to manage PAG waste rock should a revised method or increased capacity of the proposed plan be warranted.

Expansion of the Genesis Pit would require dewatering that part of the Genesis Pit lying east of the Gen Fault, a north-south trending fault structure that spans the eastern portion of the Genesis Pit. The portion of the pit west of the Gen Fault lies within the groundwater drawdown area associated with ongoing dewatering activities at Barrick's nearby Goldstrike Operations (Betze Pit and Meikle Underground Mine) and Newmont's Leeville Mine and would not require dewatering. Current dewatering has lowered the regional groundwater table on the west side of the Gen Fault to a level where additional dewatering to accommodate Genesis Pit expansion is not necessary.

Variations in water levels separated by the Gen Fault are indicative of compartmentalization of groundwater in the Genesis Pit east highwall. Dewatering the east wall would involve construction of drain boreholes and pumping wells. Currently, up to 35 drains and ten wells, combining to pump up to 250 gallons per minute (gpm) for up to ten years, are expected to be necessary to dewater the Genesis Pit east highwall to allow the east highwall to be safely laid back. The number of wells and drains may be modified as dewatering experience is gained.

Water produced from pumping on the east side of the Gen Fault would be distributed through existing buried pipelines to Newmont's North Area Leach operations, Barrick's processing facilities, and to the Deep Post/Deep Star underground mining operation. Water produced via drains would infiltrate into permeable, dewatered carbonate rock beneath the Genesis Pit. All dewatering operations require permitting by the State of Nevada.

Continued development of the Genesis Project would require excavation and placement of approximately 450Mt of waste rock. Nearly 80 percent (355Mt) of waste rock generated over the life-of-mine would be used to backfill the Beast, Bluestar, and portions of the Genesis pits. Approximately 95Mt of waste rock would be placed as lifts on top of the existing Section 5 (41Mt) and Section 36 (54Mt) Waste Rock Disposal facilities.

PAG waste rock at Genesis is expected to total approximately 28Mt or six percent of total waste rock to be removed during mining. Waste rock with a Net Carbonate Value (NCV) less than zero and any waste rock with a paste pH of less than 6 would be classified as PAG. Conversely, waste rock with an NCV greater than or equal to zero and with a paste pH of 6 or higher would be classified as non-PAG. PAG waste rock would be segregated and placed in mined-out portions of mine pits (above pre-mining groundwater levels) and in the Section 5 and Section 36 Waste Rock Disposal facilities, and encapsulated with a minimum ten-foot thick layer of non-PAG acid-neutralizing waste rock.

To check existing results from waste rock classification analyses for the Proposed Action, a supplemental testing program would be initiated. If results from supplemental testing differ from existing analyses, classification and management of waste rock (up to an additional 100Mt of PAG) mined under the Proposed Action (up to 128Mt) may be modified as determined by the BLM and the NDEP using guidance established in the AMP created specifically for this Project and included as part of the Waste Rock Management Plan for the Genesis Project.

Surface water control structures (e.g., berms and ditches) would be constructed as appropriate to preclude meteoric water from flowing into the proposed Bluestar Ridge Pit. These control structures would remain in-place over the operational life of the Project and as permanent features after final reclamation and mine closure. Sediment control measures have been implemented, as necessary to reduce soil movement within the site and to minimize off-site effects. These structures are designed and constructed to allow access for maintenance throughout the life of the Project. Soil collected in these structures would be periodically removed and placed in the soil stockpile or on reclaimed areas. Sediment control structures would be removed once vegetation has stabilized on reclaimed areas.

Existing ancillary facilities in the North Operations Area complex (e.g., maintenance shops, fueling areas) would be used to support mining activities at the Genesis Project. No new ancillary facilities would be needed to serve the Proposed Action.

All non-hazardous solid waste generated at the Genesis Project would be disposed of in an existing NDEP approved Class III waivered landfill located in the Genesis-Bluestar Operations Area. Hazardous wastes would not be generated at the proposed Genesis Project. Wastes associated with ore processing would be administered under either the North Operations Area - a Conditionally Exempt Small Quantity Generator of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) (40 CFR Part 260-270), or the South Operations Area, which is a Large Quantity Generator of hazardous waste as defined by RCRA.

Reclamation would include:

- Regrading waste rock disposal facilities, haul roads, and stockpile areas;
- Drainage control to channel run-off away from open pits and to minimize erosion;
- Replacing more than 622,000 cubic yards (cy) of salvaged growth media;
- Hauling approximately 3.0 million cubic yards (Mcy) of Tertiary Carlin Formation material from the East Lantern Waste Rock Disposal Facility (about one-half mile south of the Genesis Project) for use as growth media;
- Revegetation; and
- Monitoring of reclamation and water control structures.

The reclamation schedule includes concurrent reclamation during operations and post-mining recontouring and revegetation totaling approximately 985 acres. Approximately 150 acres would remain as highwall and open pit. The Genesis Project includes approximately 300 acres of additional reclamation compared to the No Action Alternative as a result of backfilling and reclamation of existing pits within the mining area.

PROJECT ALTERNATIVES

Neither BLM, nor any cooperating agency, nor any commenting public has identified an alternative which is reasonable, feasible, and/or economically viable which would reduce or eliminate impacts resulting from implementation of the Proposed Action. Therefore, the only alternative discussed in detail in this EIS is the No Action Alternative. Five other alternatives were considered but eliminated from detailed analysis.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved. Newmont would not receive authorization to use public land to conduct additional mining in the Genesis-Bluestar Operations Area as proposed by the Genesis Project amendment. Current operations could continue until the limits of existing authorizations are reached. A pit lake would develop in the Genesis Pit over the next 400 years and approximately 685 disturbed acres would be reclaimed (300 acres less than the Proposed Action). Newmont would reduce Carlin work force employment levels by 211 in 2011, with reductions in employment levels reaching 1,164 in 2016 compared to the Proposed Action.

Newmont would have the option of submitting a revised Plan of Operations (POO) for the Genesis Project addressing those issues that resulted in selection of the No Action Alternative. The revised POO would be reviewed for conformance to statutes and regulations and a new National Environmental Policy Act (NEPA) analysis would be completed where appropriate.

MAJOR ISSUES

Major issues identified by the agencies during review of the Genesis Project Plan of Operations Amendment and during public scoping include the following and are addressed in respective sections of the EIS:

- Social and economic impacts to the local and regional economy from labor income, tax revenues, and continued employment resulting from the Proposed Action;
- Potential impacts of dewatering compartmentalized groundwater east of the Gen Fault on the regional water system; and
- Classification and management of potentially acid-generating PAG rock.

IMPACTS

The following is a summary of potential impacts, by resource, resulting from the Proposed Action and No Action Alternative. Mining activities under the Proposed Action would occur over a twelve-year period from 2011 to 2022, with reclamation activities occurring both concurrently and continuing after mining ceases. Under the No Action Alternative, mining operations are expected to cease in 2011 followed by reclamation.

AIR QUALITY

Proposed Action

Gaseous criteria air pollutant emissions such as sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO) typically result from combustion related activities from diesel engines used to power mining equipment and haul trucks. Ambient monitoring of gaseous emissions at the Genesis Project is not required under permits issued by NDEP Bureau of Air Pollution Control. Operations at the Genesis Project would be conducted under existing Air Quality Permit No. AP 1041-0402.02.

Mining would continue in open pits with fugitive dust emissions controlled at the point of generation. Ore and waste rock would be drilled and blasted in sequential benches to facilitate loading and hauling. Haul trucks enter and leave the pit traveling on main haul roads to the waste rock disposal facilities, pit backfill areas, Mill 5/6 complex in the South Operations Area, or the North Area Leach Facility.

Fugitive dust emissions would be generated from wind erosion of disturbed areas and road dust. Haul roads would be maintained on a continuous basis for safe and efficient haulage and to minimize fugitive dust emissions. Generation of fugitive dust from ore handling activities would be controlled in accordance with Newmont's Fugitive Dust Control Plan and requirements of NDEP Air Quality Permit AP 1041-0402.02, which could include direct water application, use of approved chemical binders or wetting agents, water spray, and revegetation of disturbed areas concurrent with operations.

On July 18, 1997, EPA promulgated a revised National Ambient Air Quality Standard (NAAQS) for $PM_{2.5}$. The effective date of this rule is November 21, 2008, which requires states to complete a State Implementation Plan to implement $PM_{2.5}$ rules. The State of Nevada has submitted a plan to comply with the 1997 ($PM_{2.5}$) NAAQS, but as of the date of this document the EPA has not acted on the plan. The Genesis Project is located within an area classified by NDEP as an Attainment Area indicating air pollution levels in the area do not exceed ambient standards.

Modeling results for $PM_{2.5}$ emissions associated with regulated emission sources in the cumulative effects study area indicate that the maximum first high ambient $PM_{2.5}$ concentration from the North Operations Area facility emission sources (which included the Genesis Project sources) alone are 4.15 micrograms per cubic meter ($\mu g/m^3$), less than 12 percent of the $PM_{2.5}$ ambient standard of 35 $\mu g/m^3$.

An analysis of vehicle exhaust emission factors from heavy duty diesel vehicles transporting ore to Mill 5/6 in the South Operations Area was obtained using the EPA MOBILE6 model. Emission factors derived from the MOBILE6 modeling indicate that most emissions and impacts would be dispersed over a distance of 18 to 20 miles. The estimated emissions generated are expected to have minimal impact on surrounding areas.

Approximately 4Mt of run-of-mine oxide ore associated with the Genesis Project would be placed annually on Newmont's North Area Leach Facility (a total of 48Mt over the twelve-year life-of-mine). Based on the average mercury content of Genesis ore (4.8 parts per million or ppm), a small amount of mercury would load to the carbon columns during the leaching circuit each year of operation. The impregnated carbon would be shipped to the Mill 5/6 complex for stripping and recovery of gold, silver, and mercury. The carbon regeneration procedure also results in recovery of mercury.

Approximately 6.7Mt of refractory ore from the Genesis Project would be shipped to the South Operations Area Mill 6 for roasting. Refractory ore would be mined and processed during an eight year period within the twelve-year Project life (837,500 tons annually). Based on the average mercury content of Genesis ore, approximately 8,040 pounds (lbs) of mercury would be associated with the refractory ore shipped to Mill 6 for processing.

Emission factors based on 2008 source testing for Newmont's South Operations Area indicate that 99.89 percent of the mercury present in the ore is retained or removed through emission controls at the roaster and carbon regeneration. As a result, the average annual mercury emissions from 46,440 lbs of available mercury (38,400 lbs associated with leach ore and 8,040 lbs associated with refractory ore) would be 51.2 lbs. Given that the mercury content of Genesis Project ore is low (4.8 ppm) compared with other ore sources, when combined with control technology, processing Genesis refractory ore as a batch or blended with other ore would not increase annual mercury emissions from the Mill 5/6 facility, but would extend the period of emissions and increase the total amount of mercury emitted from Mill 5/6.

No Action Alternative

The No Action Alternative would avoid emissions resulting from twelve years of mining activity, including removal and placement of 450Mt of waste rock and processing of 60Mt of ore. Emissions associated with currently authorized mining activities and reclamation would continue until completion, approximately 2011 for mining and approximately 2016 for major reclamation activities.

GEOLOGY AND MINERALS

Proposed Action

Approximately 450Mt of waste rock would be mined and placed in either the Section 36 or Section 5 Waste Rock Disposal facilities or backfilled into existing pits. Approximately 60Mt tons of ore would be mined and processed, of which 48Mt would be placed on the North Area Leach Facility and 12Mt processed at the Mill 5/6 facility in the South Operations Area.

The excavation and exposure of waste rock and ore to oxygen and precipitation during mining operations and thereafter, could result in formation of acidic water where sulfide minerals, and to a lesser extent sulfate minerals, exist within the rock. Such reactions could result in leaching of metals from the waste rock and contamination of both surface water and groundwater. However, modeling of the proposed waste rock disposal facilities, including the proposed encapsulated PAG cells, concluded there would be limited meteoric water flow through the waste rock. Any production of acid drainage and mobilization of contaminants, including metals, would be quickly attenuated by surrounding waste rock, including the encapsulation layer. Reactions between the rebounding water table and waste rock

(all PAG cells would be above the rebound water table) could produce temporary concentrations of some constituents above drinking water standards in groundwater; however, dilution would occur over a reasonably short period of time. The temporary concentration of contaminants is not an environmental concern since it would not affect any surface water and there is no expected short-term need for the water for any purpose. PAG material exposed in pit highwalls would be covered by in-pit backfill.

In response to concerns from the EPA, Newmont, BLM, and EPA developed an AMP to provide additional testing of waste rock to determine if previous testing results were accurate. The AMP identifies additional waste rock characterization work, future waste rock monitoring associated with the Project, and actions that would be employed to manage additional PAG waste rock should a revised waste rock classification system, resulting in additional PAG tonnage, be warranted.

Supplemental rock characterization and confirmation testing associated with the AMP would be completed within the first year of the Genesis Project. Should results of the testing indicate the necessity of implementing a revised PAG management method, Newmont would initiate the requisite engineering design. Fundamentally, the revised PAG management method would involve expansion of the proposed PAG cells and possible additional PAG cells, depending on the tonnage involved. An updated AMP is included as **Appendix A** in this Final EIS.

After completion of supplemental waste rock testing, waste rock monitoring would revert to the Genesis Project Waste Rock Management Plan, which is a component of Newmont's North Area Leach Operations Water Pollution Control Permit. The Waste Rock Management Plan would be continued throughout the life of the mine.

No Action Alternative

Implementation of the No Action Alternative would result in completion of mining under current authorizations and closure plans and avoid any additional impacts to public land. It would also eliminate recovery of approximately 60Mt of ore from the geologic resource, and the gold reserve intended to be mined would remain in-place. Pit backfill associated with the Proposed Action would not occur resulting in about 450 acres remaining as open pits (300 more acres than under the Proposed Action) and leaving access to whatever resources exist in those pits. Development of the pit lake would then eventually reduce access to those resources, increasing costs for future mining and thereby make it increasingly unlikely that the resources could be mined in the future.

WATER QUANTITY AND QUALITY

Proposed Action

Surface Water

The Proposed Action would not result in a modification of surface water conditions in the Project area because no natural undisturbed drainages currently exist within the footprint of the Proposed Action. Runoff from precipitation in the Project area would be collected in ditches and diverted to sediment ponds, with final use for mining-related activities. Ditches upgradient from disturbed areas would also be used to divert runoff from undisturbed areas around the mine site. Sediment control structures would remain active during the post-closure period until reclamation is complete.

The Genesis Pit would be backfilled with waste rock to a level above the predicted final post-mine recovered groundwater level. Therefore, no pit lake would form under the Proposed Action. The Bluestar and Beast pits would also be backfilled with waste rock. The Bluestar Ridge Pit would be above the final recovered groundwater level. Some temporary ponding of water could be expected in the bottom of the Bluestar Ridge and the remnant Genesis pits in response to rain events or snowmelt run-off. PAG rock would not be exposed to contact with meteoric water after mining activities, including reclamation, in either the Genesis Pit or the Bluestar Ridge Pit.

Groundwater

The proposed dewatering program for the Genesis Pit, required to safely expand mining operations, would result in lowering the water table in siliceous Vinini Formation rocks along the east side of the Gen Fault. This groundwater is not in direct communication with the regional groundwater system in the carbonates, which is currently being dewatered by operations at Barrick's Goldstrike Operations and Newmont's Leeville Mine. Thus the dewatering would not affect the regional groundwater system. The use of boreholes to permit groundwater from the Vinini formation to drain directly into the carbonates below is not expected to adversely impact groundwater quantity or quality. The amount of water drained would be small relative to the regional groundwater system as to have no measurable impact on quantity. Plugging the boreholes as required by Nevada state regulations after dewatering operations cease would reinstate the current groundwater situation of no or minimal communication between groundwater in the Vinini and the regional carbonate groundwater system.

Groundwater in the Vinini Formation east of the Gen Fault does not supply water to any seeps, springs, streams, or wells in the Project area. Dewatering for the Genesis Pit expansion would have no effect on surface water features or water rights.

Results of the updated Carlin Trend groundwater flow model show that the additional groundwater pumping and dewatering in the Vinini Formation east of the Genesis Pit would not measurably change the ten-foot drawdown isopleths for regional dewatering from current model predictions. During recovery of the regional groundwater level in the carbonates after cessation of mine dewatering in the northern Carlin Trend, groundwater would eventually rise into the backfilled Genesis Pit and contact waste rock. After recovery of water levels in the northern Carlin Trend is complete by about the year 2400, groundwater in the Genesis area is predicted to flow northward toward the nearby Betze/Post pit lake, which will begin to develop around 2030. All other mine pits at the Genesis Project site would be completed above the final recovered groundwater level. Backfilling would prevent development of a pit lake that would occur under the No Action Alternative.

Geochemical modeling of groundwater in the backfilled Genesis Pit and beneath waste rock disposal facilities predicts that groundwater would not become acidic as a result of the Genesis Project. PAG waste rock would be placed in encapsulation cells located above the modeled groundwater recovery level in waste rock disposal facilities, including backfilled portions of the Genesis Pit. As the water table rebounds in the backfilled Genesis Pit, constituents in the waste rock released/dissolved during initial saturation would be relatively concentrated compared to groundwater beyond the confines of the Genesis Pit. Release of constituents to groundwater would steadily decrease over time and water quality would return to pre-mining water quality conditions due to dilution and attenuation by the large volume of carbonate rocks in the backfill and surrounding the backfilled pit. Because this groundwater would be

isolated from the surface, it would not be the source for seeps or springs, nor would it be pumped for any purpose. The temporary concentration of constituents is not considered to be an impact of concern.

No Action Alternative

Surface Water

Effects to surface water resources for the No Action Alternative would be similar to the Proposed Action described above, except that the existing mine pits would not be backfilled and the Bluestar Ridge Pit would not be constructed. The very slight possibility of ephemeral ponding of acidic water in the existing pits would continue and could require preventive/remedial treatment which would consist of placing limestone rock in the areas where such water was ponding as the limestone would neutralize any acidity. Approximately 450 acres of open pits (Bluestar, Beast, and Genesis) would remain and collect runoff which would be subject to infiltration and evapotranspiration.

A pit lake having a surface area of about 41 acres would form in the Genesis Pit to an elevation of about 5250 feet above mean sea level (amsl) as a result of the recovered water table in carbonate rocks. This lake would have no outlet to surface water, but would be subject to water loss through evaporation and limited groundwater flow northward toward the Betze Pit lake. Elevated levels of some metals above drinking water standards are predicted for final pit lake water quality. Many wildlife and plant species have high tolerance for elevated toxin levels, but the areas of future concentration of pit lakes may introduce wildlife populations to sustained exposure to toxic components.

If the No Action Alternative is selected, BLM may petition NDEP to reevaluate pit lake water chemistry and conduct an Ecological Risk Assessment (ERA). There is no established requirement for an ERA for the pit lake as the requirement did not exist when the mine was permitted. The pit lake would be on private land.

Groundwater

Potential impacts to groundwater quality would be similar to those described above for the Proposed Action with respect to potential for generating acid and releasing metals to groundwater. For the No Action Alternative, the acidity and release of constituents would result primarily from precipitation interacting with PAG material in pit walls rather than interaction between rebounding groundwater and backfilled waste rock.

The Genesis Pit lake is not expected to begin forming from the rebounding regional water table until about year 2130. When groundwater levels reach equilibrium at an elevation of 5225 feet amsl, the regional groundwater system will flow from the Genesis area north toward the Betze/Post Mine area. The amount of groundwater flow from the Genesis Pit to the regional groundwater flow system is predicted to be low (one to two gpm). Model predictions show that 90 percent of the pit lake infilling would be completed by 2350. As the pit lake develops, evapoconcentration would result in a long-term increase of concentrations of some constituents. Precipitation of some solutes would occur with resulting decreasing concentrations. Overall, the pit lake is predicted to be alkaline with some metals (*i.e.*, arsenic, beryllium, antimony, selenium, and thallium) predicted to exceed drinking water standards. Pit lake water would affect groundwater quality by increasing the concentration of constituents to

slightly above that of pre-mining concentrations. This effect would be limited to the area immediately north of the pit lake, in the direction of groundwater flow. Limited flow (one to two gpm), combined with dilution from mixing with other groundwater, would reduce concentration levels to slightly greater than pre-mining concentrations.

SOIL RESOURCES

Proposed Action

The proposed Genesis Project would result in 43 acres of new disturbance. Impacts to soil occur in two separate stages during mining operations: 1) soil loss during salvaging, when growth media is stockpiled and stabilized in stockpile areas, and 2) loss between final redistribution and completion of reclamation. Most impacts to soil would occur during salvage and stockpile operations. Erosion during and after redistribution of growth media would have a greater effect on final reclamation.

Impacts to soil would include modification of chemical and physical characteristics, loss of soil to wind and water erosion, and decreased biological activity. Chemical changes would result from mixing surface soil with subsoil during salvaging operations. Impacts on physical characteristics of soil during salvage, stockpiling, and redistribution would include mixing, compaction, and pulverization from equipment and traffic. Soil mixing would reduce organic material and increase coarse fragments in the surface soil.

Water erosion could occur during heavy precipitation or run-off events due to exposed soil, fine soil texture, soil surface conditions, and slope. Newmont would continue to maintain the existing sediment control system (run-off control ditches and sediment ponds) to capture soil and sediment that moves from the disturbed area during precipitation events over the life of the Project. Once vegetation is established and sediment run-off stabilizes, sediment control ponds would be removed. Run-on diversion channels and ditches would remain as permanent features after final reclamation and mine closure.

As a result of salvage and stockpiling, growth media would have lower organic content. Soil biological activity would be reduced or eliminated during stockpiling as a result of anaerobic conditions created in deeper areas of stockpiles. Redistribution of soil during reclamation would result in decreased quantity and quality due to compaction from loading, hauling, and placement activities. Soil loss would continue after placement until vegetation is established. Compaction would be reduced by scarifying soil after placement.

The proposed Bluestar Ridge Mine would remain as an open pit following cessation of mining operations. Soil salvaged during development of the Bluestar Ridge Mine pit would be used during reclamation of associated haul roads and the Section 5 Waste Rock Disposal Facility.

In-pit backfill of the Beast, Bluestar, and partial backfill of the Genesis Pit would reestablish about 300 acres of land surface that would be reclaimed with placement of growth media and seeding – which would not be reclaimed under the No Action Alternative. Newmont would haul approximately 3.0Mcy of Tertiary Carlin Formation material from the East Lantern Waste Rock Disposal Facility for use as growth media in reclamation of disturbed areas (approximately 985 acres) in the Genesis-Bluestar Operations Area that are not currently under reclamation. With the exception of highwalls that would

remain in the Genesis Pit, this material would be combined with previously salvaged growth media to provide two feet of cover over disturbed areas. The East Lantern Waste Rock Disposal Facility is located about one-half mile south of the Genesis Project.

No Action Alternative

Soil resources in the proposed Genesis Project area would not be impacted by implementation of the No Action Alternative since no ground disturbance of undisturbed areas associated with mining activities would occur. Impacts to soil associated with previously authorized ground disturbing activities in the area would continue. Under the No Action Alternative, approximately 450 acres would remain as open pits and would not be revegetated. Transport of Tertiary Carlin Formation material from the East Lantern Waste Rock Disposal Facility is not expected.

VEGETATION

Proposed Action

Approximately 43 acres of vegetation in the Project area would be directly affected as a result of excavation of the Bluestar Ridge Mine pit and construction of haul roads. About seven acres of the 26 acre Bluestar Ridge Mine footprint have been previously disturbed by exploration activities (e.g., roads and drill pads). The Bluestar Ridge Mine would remain as an open pit following completion of mining operations; approximately 17 acres associated with haul roads and exploration activity in the Bluestar Ridge area would be revegetated. The proposed reclamation plan would have a net increase of about 300 acres that would receive growth media and seeding over the No Action Alternative due to the reclamation of backfilled pits. Disturbed areas would be reclaimed and revegetated, restoring habitat for wildlife and serving to partially re-establish connections between habitat areas that are currently separated by the concentration of mining activity in the Carlin Trend. This revegetation would initially be a grass dominated community as opposed to a previously shrub dominated community. This would change land use patterns for the area in terms of species utilization.

Concurrent revegetation during and after mining would likely reestablish permanent and stable vegetation cover within five to ten years, assuming livestock use in the area is deferred and noxious weeds are controlled. The plan's seed mix has been shown to be well suited for the existing climate conditions and has worked well on previous reclamation.

Special-Status Plant Species

No special status plant species would be affected by the Proposed Action.

Invasive, Non-Native Species

Disturbed areas would be susceptible to invasion by undesirable, non-native species (weeds). Noxious weeds would be controlled by an existing weed control program during and after mining operations. Adjacent areas located outside of the Project area would continue to be a source of noxious weeds.

No Action Alternative

Approximately 685 acres of existing reclaimable disturbance would be revegetated. Existing growth media (approximately 622,000 cy) would provide over six inches of cover material for revegetation. The intent of revegetation and impacts from weeds would be the same as for the Proposed Action. Upon completion of existing authorized mining operations, approximately 450 acres would remain as open pits and not be revegetated.

Special Status Plant Species

Special status plant species would not be affected by implementation of the No Action Alternative.

Invasive, Non-native Species

Under the No Action Alternative, control of invasive, non-native species would continue under the existing weed control program.

TERRESTRIAL WILDLIFE

Proposed Action

The Proposed Action would result in direct loss of 43 acres of sagebrush/grassland habitat, of which 17 acres would be reclaimed as grassland habitat and 26 acres would remain as an open pit (Bluestar Ridge Pit). An additional 300 acres, compared to the No Action Alternative would be reclaimed and available for wildlife habitat due to the backfilling of existing mine pits. Direct loss of habitat would eliminate forage, cover, breeding sites for small mammals and birds, and nesting cover. Terrestrial wildlife species currently using this habitat would be displaced or killed unintentionally. The proposed addition of 43 acres of disturbance to the existing Genesis-Bluestar Operations Area is not expected to result in a substantive adverse effect on wildlife numbers in the general area.

Impacts of dust, exhaust fumes, and other air pollutants on wildlife may result in temporary displacement due to reduced palatability of vegetation. Impacts would occur primarily downwind from construction and mining activity. Human presence and noise impacts would not change from current conditions. No hazardous materials would be used in the proposed expansion that could cause an additional risk to wildlife.

Big Game Species

Mule deer are present in the Genesis-Bluestar Operations Area primarily in spring and fall. The general area is located in transitional range used by mule deer migrating between high-elevation summer range (Tuscarora Mountains) to the north and low-elevation winter range to the south (Dunphy Hills and southern end of Tuscarora Mountains). Seasonal timing, duration, and routes of mule deer migration and use of transitional range between winter and summer habitat has been affected by ongoing mining activities in the Carlin Trend, which includes the Genesis-Bluestar area. Movement along the western slopes of the Tuscarora Mountains has been inhibited by mining activity. Historic migration routes have been abandoned; deer movement has been effectively restricted to a few key migration routes, including the Lantern Mine area and near the crest of the Tuscarora Mountains just east of the Leeville mine.

Lower elevation areas adjacent to the western slopes of the Tuscarora Mountains have been burned by lightning-caused wildfires resulting in removal of large areas of sagebrush and important browse species.

Potential impacts to mule deer, pronghorn, and elk would include the incremental long-term reduction of 43 acres of potential forage and the extended impacts to 2,000 acres during the twelve-year mine life. Habitat fragmentation associated with 43 acres of additional disturbance would increase in the short-term; however, backfilling and reclamation of 300 acres of existing mine pits would restore land surface that would provide habitat supporting wildlife and livestock grazing uses over the long-term as compared to the No Action Alternative.

Small Game Species

The Proposed Action would have a similar impact on small game species (e.g., chukar, mourning dove, pygmy rabbit, and black-tailed rabbit) as described for big game with the permanent loss of 26 acres of vegetation associated with the Bluestar Ridge Pit. This acreage loss would be offset by backfill and reclamation of 300 acres of existing mine pits compared to 450 acres of open pits that would remain under the No Action Alternative. In-pit backfilling of mine pits would reestablish land surfaces that would be reclaimed to a desired plant community. Impacts to small game populations would include limited direct mortalities from mining operations, habitat loss or alteration, incremental habitat fragmentation, and animal displacement. Indirect impacts could include increased noise, additional human presence, and the potential for increased vehicle-related mortalities.

Nongame Species

Potential impacts to nongame species (e.g., small mammals, passerine, raptors, amphibians, and reptiles) would be similar to those described above for small game species.

Migratory Birds

Direct loss of habitat would eliminate forage, hiding cover, breeding sites, and nesting cover for birds. Potential impacts to migratory birds would be similar to those described above for small game species.

Special Status Species

The Proposed Action is not expected to impact any special status species because it is unlikely there are any special status species in the area due to the lack of water, lack of preferred habitat, and ongoing mining activities. Special status species that could utilize the undisturbed habitat identified in the Proposed Action are pygmy rabbits, bats, eagles, hawks and other raptors, grouse, shrews, and passerine species.

No Action Alternative

Under the No Action Alternative, potential impacts to terrestrial wildlife and special status wildlife species from development of 43 acres of sagebrush/grassland habitat would not occur. Approximately 450 acres encompassing the Beast, Bluestar, and Genesis pits would not be backfilled and would remain as open pits. A pit lake of about 41 acres would eventually begin to form in the Genesis Pit about 100 years after cessation of dewatering activities at the Betze/Post and Leeville mines. There is no

established requirement for an Ecological Risk Assessment (ERA) for the pit lake as the requirement did not exist when the mine was permitted. If the No Action Alternative is selected, BLM may petition NDEP for an ERA reevaluation for pit lake quality. The pit lake would be on private land.

SOCIAL AND ECONOMIC RESOURCES

Proposed Action

All of the work force for the Genesis Project would be from the existing Newmont work force in the Carlin Trend. The Proposed Action, together with other Newmont activities, would provide for long-term operations in the area, with potential for stable employment levels for approximately twelve years. The Project would create more than 9,700 man-years of employment over the twelve-year life, representing more than one-third of all mining related jobs in the Elko, Spring Creek, and Carlin area in 2016.

Based on the average annual salary ($79,500) for mine workers, the proposed Project would continue employment producing an average of more than $54 million in annual mining wages and $23 million in annual indirect wages. Thus direct and indirect employment provided by the Genesis Project would average 1,271 jobs and $77 million in annual wages, representing more than five percent of all jobs in Elko County. Continued mine employment at the Genesis Project would maintain quality-of-life for workers and their families and help to maintain the economy of the local area which is highly dependent on mining, with some estimates indicating more than two-thirds of wages in the local area are directly or indirectly related to mining. Tax revenues to support local and state government run parallel with employment. Tax revenue for both Eureka and Elko County would be generated by the Genesis Project.

At the end of the Genesis Project, if no replacement employment is available, the remaining jobs associated with the Genesis Project will be lost. This effect is similar and perhaps identical to the No Action Alternative, but the additional twelve years of employment would allow additional time for new industry to develop in the Elko area and perhaps provide alternative employment when mining at the Genesis Project winds down.

No Action Alternative

Under the No Action Alternative, employment at Newmont would decrease by 211 jobs in 2011 and there would be 1,164 fewer jobs at Newmont in 2016, representing almost one-third of all mining jobs currently expected to exist in the local area if the Proposed Action were to be approved. Related impacts would include increased unemployment, reduced wages spent in the local economy, decreased revenue to local and state jurisdictions, increased stress on public assistance programs, and decreased quality-of-life for some residents. Ongoing mineral exploration and development throughout northern Nevada may offer employment opportunities in the region, thereby offsetting the effect of the No Action Alternative.

AGENCY PREFERRED ALTERNATIVE

The BLM has identified a preferred alternative based on the analysis in the Draft EIS. This preferred alternative is the alternative that best fulfills the agency's statutory mission and responsibilities, considering economic, environmental, technical, and environmental protection measures. The Proposed Action evolved over the course of BLM's review of the Plan of Operations under 43 CFR 3809 regulations and the environmental impact analysis during compilation of the Draft EIS including waste rock management, growth media replacement volumes and sources, and reclamation regrading and contours. The BLM has determined that the preferred alternative is the Proposed Action as outlined in Section 2.3 of the Draft EIS, with modifications and corrections as shown in Chapter 2 of this Final EIS.

The Proposed Action includes mining 450Mt of waste rock, including an estimated 28Mt of PAG rock, expansion of the Section 36 and Section 5 Waste Rock Disposal facilities, backfilling the Beast and Bluestar pits and partial backfilling the Genesis Pit, including cells constructed for the express purpose of isolating PAG rock from meteoric water and groundwater. The Proposed Action also includes an Adaptive Management Plan for Waste Rock to address concerns of other entities and add to the confidence level for proper classification and management of waste rock, which provides for supplementary testing of waste rock geochemistry and a design for management/encapsulation of up to 128Mt of PAG waste rock, more than 100Mt than is presently expected.

The Proposed Action includes mining 60Mt of ore, of which 48Mt is destined for the North Area Leach Facility, adjacent to the Genesis-Bluestar Operations Area, and 12Mt would be transported to Mill 5/6 located at the South Area Operations Area just north of Carlin, Nevada. The Proposed Action would eliminate the potential for development of a pit lake in the Genesis Pit which would have occurred under the No Action Alternative, and would restore an additional 300 acres of land surface to productive use through reclamation. The 300 acres would have remained as open pits under the No Action Alternative. In addition, the Proposed Action would provide employment for most of the work force currently tasked to the Genesis-Bluestar Operations Area. The Project would provide long-term operations in this area, with consequent potential for stable employment levels over the twelve-year mine life. The proposed Genesis Project would not likely result in hiring many new employees, but would extend employment for approximately 867 of Newmont's existing Carlin Trend work force over the life-of-mine. Continued mine employment at the Genesis Project would maintain quality-of-life for workers and their families.

FINAL
ENVIRONMENTAL IMPACT STATEMENT
GENESIS PROJECT
NEWMONT MINING CORPORATION

TABLE OF CONTENTS

DEAR READER LETTER

ABSTRACT

SUMMARY S-1

CHAPTER 1 INTRODUCTION 1-1

CHAPTER 2 MODIFICATIONS AND CORRECTIONS 2-1

CHAPTER 3 COMMENTS AND RESPONSES 3-1

CHAPTER 4 ADDITIONAL REFERENCES 4-1

APPENDIX A ADAPTIVE MANAGEMENT PLAN FOR WASTE ROCK

CHAPTER 1

INTRODUCTION

This Final Environmental Impact Statement (EIS) for the Genesis Project contains the Agency Preferred Alternative, modifications and corrections to text, tables, and figures contained in the Draft EIS, and a record of written comments received on the Draft EIS with responses to substantive comments.

The Draft EIS (February 2010) for the Genesis Project was released for public comment on April 30, 2010. The BLM held a public meeting to receive comments on May 19, 2010. The comment period ended on June 14, 2010. Neither written comments nor questions raised during the public meeting or during the comment period identified the need for major changes in the Draft EIS. The Draft EIS has not been reprinted. Therefore, this abbreviated Final EIS must be read in conjunction with the Draft EIS (February 2010). For specific details on impacts to resources refer to the Draft EIS.

The Agency Preferred Alternative is described in the Summary of this document. Minor revisions to portions of text and selected figures and tables in the Draft EIS are included in the *Modifications and Corrections* section (Chapter 2) of this Final EIS. All comment letters received during the public comment period and responses to the comments are included in Chapter 3. Additional references for this Final EIS are listed in Chapter 4.

CHAPTER 2

MODIFICATIONS AND CORRECTIONS

This chapter contains specific modifications and corrections to the Genesis Project Draft EIS published in February 2010 and released for public review and comment by a Notice of Availability printed in the *Federal Register* on April 30, 2010. These revisions were made in response to comments received during the public comment period ending on June 14, 2010. **Table 2-1** identifies the text revisions. Where text has been modified or added, the new text appears in bold italic print. Deletions appear with a strikeout line through the text. Revised tables and figures are presented in their entirety following **Table 2-1**. In response to issues and concerns raised by the agencies, several modifications and revisions have been made to the Adaptive Management Plan for Waste Rock. An updated Adaptive Management Plan for Waste Rock is included in **Appendix A** at the end of this document.

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
S-12		6	2	The general area is located in ***transitional*** range used by mule deer migrating between high-elevation summer range (Tuscarora Mountains) to the north and low-elevation winter range to the south (Dunphy Hills and southern end of Tuscarora Mountains).
S-14	Pref. Alt	1	15	***The proposed Genesis Project would not likely result in hiring many new employees, but would extend employment for approximately 687 of Newmont's existing Carlin Trend work force over the life-of-mine.***
2-13	2.2.1.5	Figure 2-4 Photo 1	1	Photo No. 1 Caption – Regraded/***Recontoured*** Slopes in Genesis-Bluestar Operations Area.
2-27	2.3.1	Table 2-3	1	Insert footnote to Total Waste Rock in Year 1 of 19,700,000[1] to read: ***This material would be managed, in accordance with the Interim Waste Rock Management Plan, as PAG rock.***
2-35	2.3.5.3	Figure 2-10		See revised Figure 2-10 in Chapter 2 – *Modifications and Corrections*
2-37	2.3.5.4 Beast Pit	2/3	New	***Total waste rock tonnage to be placed as backfill into the Beast Pit under the current Genesis Project POO is 95.4Mt (91.6Mt Non-PAG and 3.8Mt PAG). Production of waste rock in the first year of mining would be approximately 20Mt (21 percent of the total amount to be placed as backfill in the Beast Pit). Results from the SWRC program may require several months up to a year to complete. To eliminate the potential for rehandling any portion of the 20Mt of waste rock backfilled in the Beast Pit in the first year, the entire 20Mt of waste rock would be managed as PAG.*** ***The pit walls and bottom of the Beast Pit where the 20Mt of PAG waste rock would be placed is comprised of Roberts Mountain Formation limestone. The ANP:AGP ratio of the Beast Pit benches and pit wall materials on which the first 20Mt of waste rock would be placed would be at least 3:1 or that a 10-foot thick layer of Encapsulation Material would be placed where pit bench and wall rock does not meet the 3:1 criteria. Waste rock produced after SWRC test results have been confirmed would be managed as determined by the testing results.***
2-39	2.3.5.4	Figure 2-11		See revised Figure 2-11 in Chapter 2 – *Modifications and Corrections*
2-51	2.3.14.2	6	4	These reports are submitted periodically to NDWR/State Engineer, NDEP, BLM, and ***Elko and Eureka counties***.
2-53	2.3.14.2	1	2	Where possible, land clearing and surface disturbance would be avoided during the avian breeding season (***March 15 to July 31***, annually) to comply with the Migratory Bird Treaty Act.
2-53	2.3.14.2	2	3-4	The working group ***has drafted*** habitat management practices to ensure maintenance and improvement of mule deer health, including herd migration capability and vegetation composition, in portions of NDOW Wildlife Management Units 067 and 068.
2-53	2.3.14.2	2	6 New	***Objectives of the group are to develop strategies that to the degree practicable provide the following:***

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
				• ***Maintain currently undisturbed migration corridors;*** • ***Modify existing migration impediments to facilitate deer movement;*** • ***Incorporate reclamation measures that reduce or eliminate impacts to migration corridors and habitat;*** • ***Develop stable landform designs that complement surrounding topography and support mule deer habitat requirements;*** • ***Enact fire management strategies to protect deer habitat, with an emphasis on crucial mule deer winter range, after each new fire;*** • ***Rehabilitate burned areas as quickly as possible;*** • ***Rehabilitate historic burns that do not currently provide adequate deer habitat; and,*** • ***Ensure that there is sufficient forage and cover for mule deer.***
3-6	3.3.2.1	Table 3-1		See revised Table 3-1- Chapter 2 – *Modifications and Corrections.*
3-16	3.3.5.2	2	New	***Eureka County population would likely remain stable over the next several years (Eureka County 2010). Mining activity will be the primary cause for increased or decreased growth within the county. Smaller gains could occur as a result of migration to the County for retirement and quality of life. Agriculture remains a mainstay in the economy providing stable employment and income base for Eureka County.***
3-24	3.4.1.1	2	New	***Monitoring data for $PM_{2.5}$ in the Carlin Trend are limited. $PM_{2.5}$ air quality monitoring data were collected on six days in the summer of 1996 from the same Gold Quarry mine site location as the PM_{10} air quality monitoring stations (iml Air Science 1996). The PM_{10} and $PM_{2.5}$ data collected on the same days are presented in Table 3-4a.***

TABLE 3-4a
South Operations Area (Gold Quarry) $PM_{2.5}/PM_{10}$ Monitoring Data

Sample Date	Filter $PM_{2.5}$ ($\mu g/m^3$)	Filter PM_{10} ($\mu g/m^3$)
26-Jul-96	11	27
01-Aug-96	10	32
07-Aug-96	11	30
13-Aug-96	36	83
19-Aug-96	15	32
25-Aug-96	16	28
Averages	16	39

Note: mg/m^3=micrograms per cubic meter
Source: iml Air Science 1996.

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
				The anomalous values for particulate matter recorded on August 13, 1996, indicate an approximate two hour period, during the evening, of windy conditions, with steady wind speed near 20 mph and gusts over 35 mph. In addition, 1996 was categorized as a drought year in Nevada and the number of wildfires exceeded the previous five years in terms of number of fires and acreage affected (NOAA 1997). Drought conditions and high wind gusts likely contributed to the measured PM_{10} and $PM_{2.5}$ data for that day. *With the exception of data gathered on August 13, 1996, the values for PM_{10} and $PM_{2.5}$ were below the applicable standards as shown in Table 3-4b:*

TABLE 3-4b
Applicable Time Periods for Nevada First-High Standards

Pollutant	Averaging Period	Applicable Standard ($\mu g/m^3$)
Particulate Matter - 10 Microns in Aerodynamic Diameter (PM_{10})	24-Hour	150
	Annual	50
Particulate Matter – 2.5 Microns in Aerodynamic Diameter ($PM_{2.5}$)	24-Hour	35
	Annual	15

Note: $\mu g/m^3$ = micrograms per cubic meter
Source: EMA 2007a.

$PM_{2.5}$ and PM_{10} ambient air concentration data have also been collected from two monitoring sites in northern Nevada that were part of the national Interagency Monitoring of Protected Visual Environments (IMPROVE) program (UC Davis 1995). The IMPROVE program stations were designed to collect data at national parks and wilderness areas to study and protect visibility in these areas Class I airsheds. These two northern Nevada IMPROVE $PM_{2.5}$ and PM_{10} monitoring sites are the nearest source of long-term cumulative $PM_{2.5}$ and PM_{10} ambient air concentration monitoring data to the Carlin Trend. The IMPROVE Jarbidge Wilderness site (JARB1), located approximately 85 miles north-northeast of the of the Carlin Trend area, collected ambient air data from collocated $PM_{2.5}$ and PM_{10} monitoring stations from 1988 through 2004 (Colorado State University 2004). The IMPROVE Great Basin National Park site (GRBA1), located approximately 161 miles southeast of the Carlin Trend area, collected ambient air data from collocated $PM_{2.5}$ and PM_{10} monitoring

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
				stations from 1992 through 2004. For these two periods of record, the Jarbidge Wilderness and Great Basin National Park sites had average $PM_{2.5}$ concentrations of 2.62 and 2.68 micrograms per cubic meter ($\mu g/m^3$); and average PM_{10} concentrations of 6.54 and 5.97$\mu g/m^3$. The data demonstrate that air quality for both airsheds is good.
3-26	3.4.1.2	3	New	*Modeling results for $PM_{2.5}$ emissions associated with a total of 337 regulated emission sources from five mining and power generation operations in the cumulative effects study area were modeled consistent with the cumulative assessment modeling conducted in 2007. The results indicate that the maximum modeled first high 24-hour ambient $PM_{2.5}$ concentration is 13.74 $\mu g/m^3$, less than 40 percent of the $PM_{2.5}$ ambient standard of 35 $\mu g/m^3$, and less than 60 percent of the $PM_{2.5}$ ambient standard with the addition of the 6.79 $\mu g/m^3$ background concentration. (The background concentration was determined following EPA guidelines for the three-year average of the 98th percentile of the 24-hour $PM_{2.5}$ measurements from Great Basin National Park). The maximum first high ambient $PM_{2.5}$ concentration from the North Operations Area (NOPA) facility emission sources (which included the Genesis Project sources) alone are 4.15 $\mu g/m^3$, less than 12 percent of the $PM_{2.5}$ ambient standard of 35 $\mu g/m^3$, and less than 32 percent of the $PM_{2.5}$ ambient standard with the addition of the assumed 6.79 $\mu g/m^3$ background concentration (EMA 2010).* *For the points representing impacts to the Class I Airshed at the Jarbidge Wilderness Area (about halfway between the Genesis Project and the wilderness) the predicted $PM_{2.5}$ modeled concentrations for all sources (which represents cumulative impacts) are 0.438 $\mu g/m^3$ for the 24 hour period and 0.0558 $\mu g/m^3$ for the annual period. These values are less than 6 percent of the Class I PM_{10} increment standards (there are no applicable $PM_{2.5}$ PSD increments). Modeling indicates that the Genesis Project combined with other Carlin Trend mining, considering the $PM_{2.5}$, as well as the PM_{10} issues, as a whole would result in minimal impacts to the Jarbidge Class I Airshed.* *In view of the existing data, as described above, which demonstrates that $PM_{2.5}$ concentrations remain within applicable standards both near the mine and in the directions of the nearest Class I Airsheds, and modeling results which indicate that $PM_{2.5}$ can be expected to remain within applicable standards, BLM has concluded that the existing analysis of $PM_{2.5}$ as presented in the Genesis Draft EIS and in this Final EIS is sufficient and that no additional analysis is necessary.*"

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
3-26	3.4.1.2	3	New	***No peer-reviewed method of modeling for mercury emissions from mine components other than stationary process facilities is currently available. Recent studies concerning fugitive mercury emissions from waste rock disposal facilities, leach pads, and tailing storage facilities have been conducted by staff and students associated with the University of Nevada-Reno (UNR) (Eckley et.al 2009). The UNR research focused on mercury emissions from a variety of land surfaces disturbed by mining activities at Newmont's Twin Creeks Mine northeast of Winnemucca, Nevada and Cortez Pipeline, a Barrick Gold property located south of Battle Mountain, Nevada. (Due to data gathering problems at the Barrick Cortez site, the study was only able to complete the assessment for the Twin Creeks Mine). The study concluded that mercury emissions from mining facilities other than ore processing at the one mining site, accounted for about 20 percent of the total mercury emissions from that site. The study cautioned that the results were solely applicable to the Twin Creeks Mine site and were not necessarily appropriate for other mines. The study also noted that reclamation brought mercury emissions down to background levels.*** ***Using a figure of 20 percent identified above, additional emissions of mercury would raise the maximum direct deposition from the Genesis Project from 0.01 to 0.12 micrograms per square kilometer per year (µg/km^2/yr). The amount of mercury deposition in cumulative deposition centers would increase from 2.0 to 2.4 and from 3.0 to 3.5 µg/km^2/yr, applying the same 20 percent figure to all sources in the cumulative deposition analysis. Therefore, mercury emissions associated with Genesis Project would equate to approximately 1 percent of the total deposition and the cumulative impact remains at less than 35 percent of the total deposition from all sources. In addition, the continuing monitoring of surface water in the Genesis Project area does not indicate detectable mercury.***
3-51	3.4.3.2	3	New	***As described in Chapter 2 - Proposed Action, Newmont would implement an Adaptive Management Plan (AMP) for waste rock should results of supplemental waste rock testing indicate that an additional amount of waste rock to be mined during the Genesis Project is to be managed as PAG (Appendix A). Pursuant to the AMP, the same total volume of waste rock would be managed in the designed waste rock disposal facilities; however, an additional volume of this rock would be placed within the encapsulation cells that would be constructed in these facilities. The concentration of constituents that would be released from waste rock under the AMP is projected to be similar to that modeled in previous geochemical testing due to the low concentrations of sulfide in waste rock that could be reclassified as PAG and the buffering capacity that would be provided by the expanded encapsulation cells. Implementation of any portion of the AMP (including the Interim Waste Rock Management Plan) would not result in any substantive differences in impacts.***

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
3-77	3.4.6.3	Figure 3-12		See revised Figure 3-12 in Chapter 2 – *Modifications and Corrections*
3-84	3.4.6.3	3	2	NDOW, with support from Newmont and Barrick, has begun to collect monitoring data using radio collars to identify migration routes ***and habitat use*** of mule deer in this area.
3-84	3.4.6.3	4	New	***NDOW, with the support of Newmont and Barrick, began in 2007 to collect monitoring data of mule deer in the Carlin Trend area. To date, approximately 20 deer have been collared in the area to determine habitat use in relation to recent wildfires. Some of the telemetry data can be used to determine deer migration routes through the Carlin Trend. NDOW has been able to track 10 deer through the mining area. The movements of these deer demonstrate the use of two key migration routes. Four deer moved through the Pete migration corridor and three have moved through the Carlin Mine migration corridor. The three remaining deer moved through either Maggie Creek or Upper Rock Creek (NDOW 2010, Area 6 Mule Deer Working Group Habitat Management Plan, 2010).*** ***An additional study was initiated by Newmont in December 2007 to determine seasonal mule deer movements within the Carlin Trend. The study included radio telemetry from collared deer, ground observations, and ten aerial surveys conducted between October 2008 and April 2009. Conclusions based on observations made during the short study period are limited. Initial results indicate that three corridors are used: Maggie Creek, East and West Flank of the Tuscaroras, and the Santa Renia. Within the Carlin Trend mining area, movements are limited to two key migration routes: the Pete migration corridor and the Carlin Mine migration corridor (GBE 2009).***
3-87	3.4.6.4	3	1	Annually, Newmont will prepare a written report and will meet with BLM, NDOW, ***and respective County Advisory Boards*** to discuss deer migration issues in accordance with the Carlin Trend Herd Management Plan.
3-92	3.4.7	6	3	Many Spring ***Creek*** subdivision residents use individual septic systems.
3-93	3.4.7.1	3	1, 4, & 7	The Nevada Highway Patrol, Elko ***and Eureka*** counties Sheriff's Department, Elko City Police, Carlin City Police, and Bureau of Indian Affairs Police provide law enforcement services to community residents. The Highway Patrol is responsible for law enforcement activities on state highway systems. The Sheriff's Departments are accountable for ***Elko and Eureka*** counties including the unincorporated towns and are aided in search and rescue operations and emergency situations by the Sheriff's Posse and Reserves. The Elko County Jail, operated by Elko County Sheriff's Department, is located in Elko. ***The Eureka County Jail, operated by Eureka County Sheriff's Department, is located in Eureka.***
3-93	3.4.7	2	New	***The City of Carlin is serviced by Wells Rural Electric.***
3-94	3.4.7	6	3	Residents in the Spring ***Creek*** Association elect a Board of Directors to manage the area.

TABLE 2-1
Modifications and Corrections
Genesis Project Draft Environmental Impact Statement

Page	DEIS Section Number	Paragraph[1]	Line	Revised Text
3-95	3.4.7	2	8	Since most companies providing services to the mines are located in Elko County and the majority of mining ***employees live*** and purchase products and services in Elko County, the county receives substantial mining related tax revenue.
4-4	1st column	2	2	***Dept. of Natural Resources should be listed as Dept. of Conservation and Natural Resources (Eureka County) under"Local Government"***
4-4	1st column	4	1	***Companies and Organizations***
4-4	2nd column	1	1	~~Local Government (continued)~~ ***Companies and Organizations (continued)***
6-3	6.0	10	New	***Eureka County. 2010. Eureka County Master Plan. Eureka County Commission. Eureka, Nevada.***
6-4	6.0	5	New	***Great Basin Ecology (GBE), Inc. 2009. Draft Carlin Trend Mule Deer Migration Corridor Survey Report. May***
B-8	App. B	Figure B-1	Legend	Legend revised: Q_r = ***Ground volume*** revised to Q_{gw} = ***Groundwater volume***
B-10	App. B	2	3	Solubility controls or equilibrium phases incorporated into the geochemical model include carbon dioxide (CO_2), oxygen (O_2), barite ($BaSO_4$), calcite ($CaCO_3$), ferrihydrite ($Fe(OH)_3$), gibbsite ($Al(OH)_3$), gypsum (***$CaSO_4 \cdot 2H_2O$***), manganite (MnO(OH)), and otavite ($CdCO_3$).
B-11	App. B – Proposed Action	4	3	The bottom elevation***s*** of the Genesis and West Genesis pits are planned to be 4640 and 4829 feet above mean sea level (amsl), respectively.
B-13	App. B HYDRUS 1D	2	2	The model domain was given an atmospheric boundary condition with ponding for the upper boundary, and a free drainage or unit gradient boundary (dh/dz = ***1***) for the lower boundary condition.
B-15	App. B Oxid. Modeling Results	3	5	Sulfide ~~***oxidation***~~ in the subsequent deeper layers (layers 9, 10, 11, and 12) remained unoxidized.

[1] Paragraph number includes first partial paragraph at top of page, if applicable.

TABLE 3-1
Past, Present, and Reasonably Foreseeable Future Mining Related Disturbance[1]
Carlin Trend

Map[2] Reference No.	Facility	Existing Disturbance (acres)	Future[3] Disturbance (acres)	Comment
1	Newmont/Rodeo Creek Gold-Hollister	283	100	Foreseeable underground gold mine. Same location as the Hollister Development Block Project.
2	Hecla - Hollister Development Block	***66***		
3	Halliburton-Rossi	373	***590***	Rossi mine expansion of Queen Lode and Sage Hen areas and may include expansion of open pits and waste rock dumps.
4	Trio Gold Corp-Rodeo Creek	42		
5	Barrick-Meridian JV-Rossi	51		
6	Barrick-Storm Underground	***194***		
7	Barrick-Arturo		2,347	Foreseeable future open pit gold mine at the existing Dee Gold Mine.
8	Marigold – Dee Mine	802		
9	Centerra -Ren	30	100	Foreseeable underground mine.
10	Newmont-Bootstrap	***1,271***		
11	Barrick-Betze/Post-Meikle , Rodeo,Goldbug, (Mill & TSF transferred from Newmont)	***9,016***		Mine expansion. Expansion includes enlargement of open pit and construction of tailing impoundment.
12	Newmont-Genesis-Bluestar, Section 36, Deep Star, Lantern, North Lantern, Bullion Monarch	***3,910***	100	Foreseeable future open pit gold mine. Expansion of the Lantern Mine in the Genesis-Bluestar Operations Area.
	Newmont Genesis		43	Continued mining of the Genesis Area. Project includes open pit mining, sequential backfill and increased height of existing external waste rock facilities.
	Newmont-North Area Leach	***1,454***	100	Expansion of the existing heap leach pad.
	Newmont Post	***1,179***		
	Newmont-Carlin Mine/Mill 1, Pete	***2,910***		
13	Newmont- Leeville	566		
14	Newmont- Chevas	168		
15	Newmont-High Desert	164		
16	Newmont -Mike	48	100	Foreseeable future gold mine project.
17	Newmont- Gold Quarry/SOAP, MC Reservoir, N-S Haul Road	***9,878***	100	Expansion of Non-property Leach Pad and construction of Property Pad 2 in Section 18.
	Greater Gold Quarry	-	1,424	
	5/6 TSF East Expansion	-	782	
18	Newmont- Woodruff Creek	66		
19	Newmont-Rain	961		
20	Newmont-Emigrant	***163***	***1,468***	Proposed open pit mine, heap leach facility and waste rock dump; permitting in progress.
TOTAL		***33,595***	***7,254***	

[1] Projects permitted by BLM as of April 2007. [2] See **Figure 3-1** for disturbance sites. [3] Reasonably foreseeable assumes 100 acres disturbance per plan or plan amendment. Actual disturbance will vary as plans are developed. Source: BLM 2010.

Barrick Goldstrike
(Betze/Post Mine)

North Area
Leach Facility

SECTION 36
WRDF

GENESIS PIT
WRDF

Cell 3

Cell 1

Cell 2

BLUESTAR
PIT WRDF

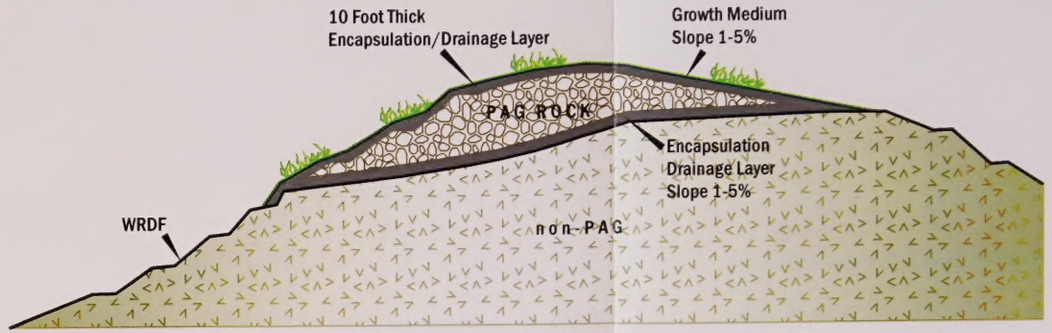
Cell 1

SECTION 5
WRDF

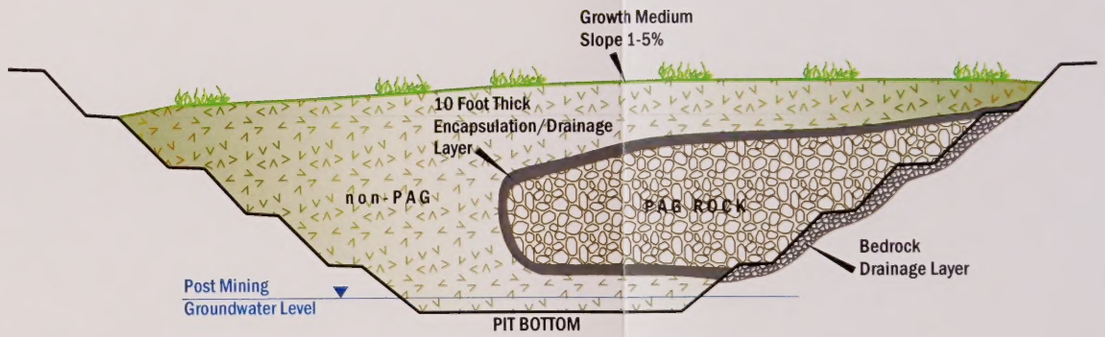
BEAST PIT
WRDF

Cell 2

T 36 N
T 35 N



TYPICAL EXTERNAL WRDF PAG CELL CROSS SECTION
Not To Scale



TYPICAL PIT BACKFILL WRDF PAG CELL CROSS SECTION
Not To Scale

H:\14069 Newmont Genesis\5000 GIS\cadpro\EIS_Figs\PAG_Cells_and_Typicol_Xsect.dwg

N

0 Feet 2000

Genesis-Bluestar
Operations Area

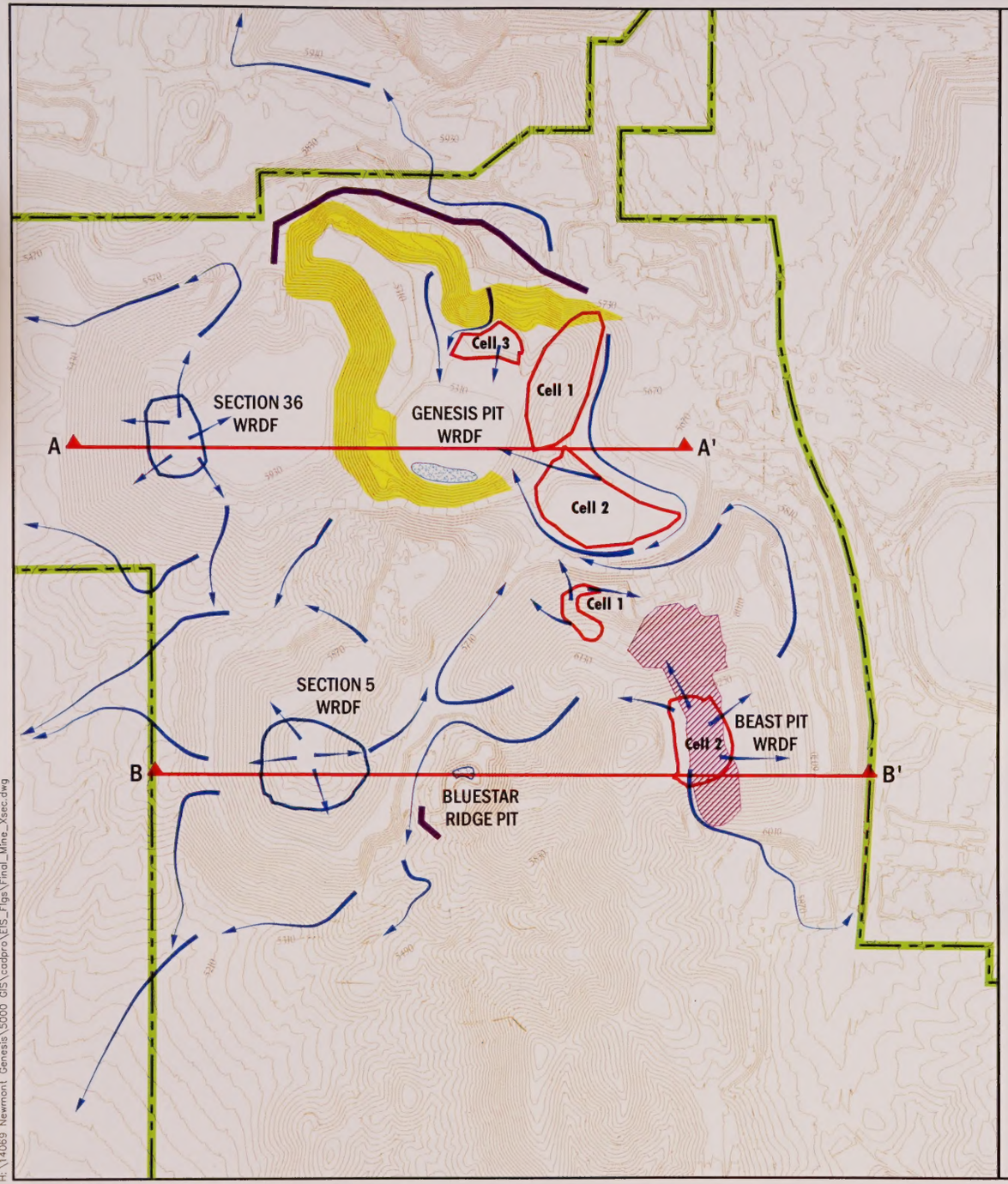
Proposed Waste Rock
Disposal Facilities (WRDF)

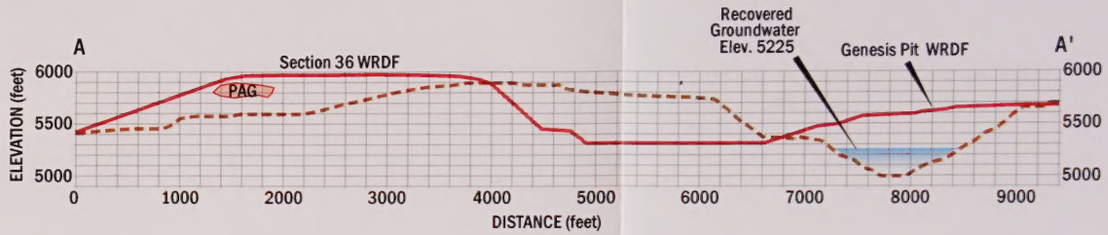
Encapsulated PAG Cells

External PAG Cells

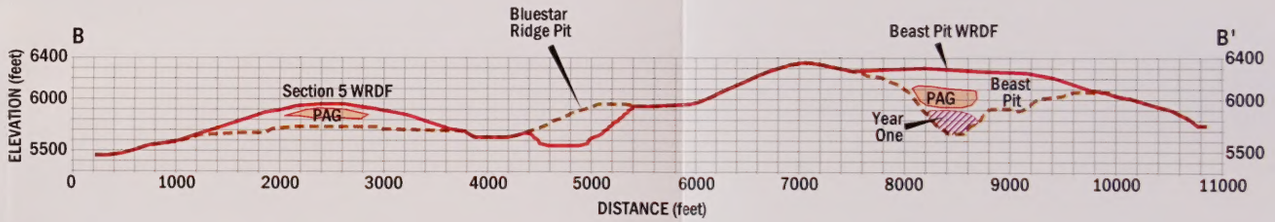
Year One Waste Rock Placement
(Managed as PAG)

**PAG Encapsulation Cells and
Typical PAG Cell Cross Sections
Genesis Project
Eureka County, Nevada
FIGURE 2-10**





CROSS SECTION A-A'



CROSS SECTION B-B'

0 Feet 1500
Horizontal/Vertical Scale

No Action
Reclamation Surface

Proposed Action
Reclamation Surface

N

0 Feet 2000

Genesis-Bluestar
Operations Area

Remaining Highwall Area

Safety Berms

Backfill PAG Cells

External PAG Cells

Flow Direction of Surface Runoff

Seasonal Ponded Areas

Year One Waste Rock Placement
(Managed as PAG)

H:\14069 Newmont Genesis\5000 GIS\cadpro\EIS_Figs\Final_Mine_Xsec.dwg

Post Closure Contours - Proposed Action
Genesis Project
Eureka County, Nevada
FIGURE 2-11

H:\14069 NEWMONT GENESIS\5000 GIS\PROJECTS\EIS\MDEER_CUMMULATIVE.MXD

Owyhee
Elko
Carlin
Dunphy
Battle Mountain
HUMBOLDT COUNTY
ELKO COUNTY
LANDER COUNTY
EUREKA COUNTY
Humboldt River
061
071
066
062
067
073
068
064
102
152
141
065
103

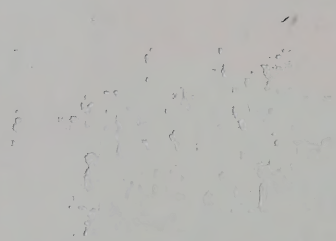
SOURCE: USGS 1:250K TOPOGRAPHIC MAPS--ELKO, MC DERMITT, WELLS, AND WINNEMUCCA, NV.

0 Miles 15

Interstate Highway
Other Roads
Plan Boundaries
Deer Migration Corridor
Cumulative Effects Study Area
NDOW Unit Boundaries

Mule Deer Habitat
Summer
Intermediate
Crucial Winter
Low Density

Mule Deer Habitat Cumulative Effects Study Area
Genesis Project
Eureka County, Nevada
FIGURE 3-12



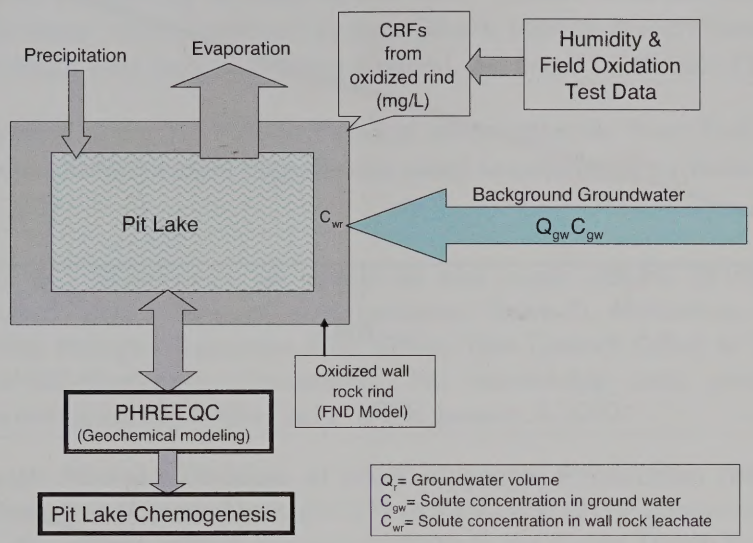
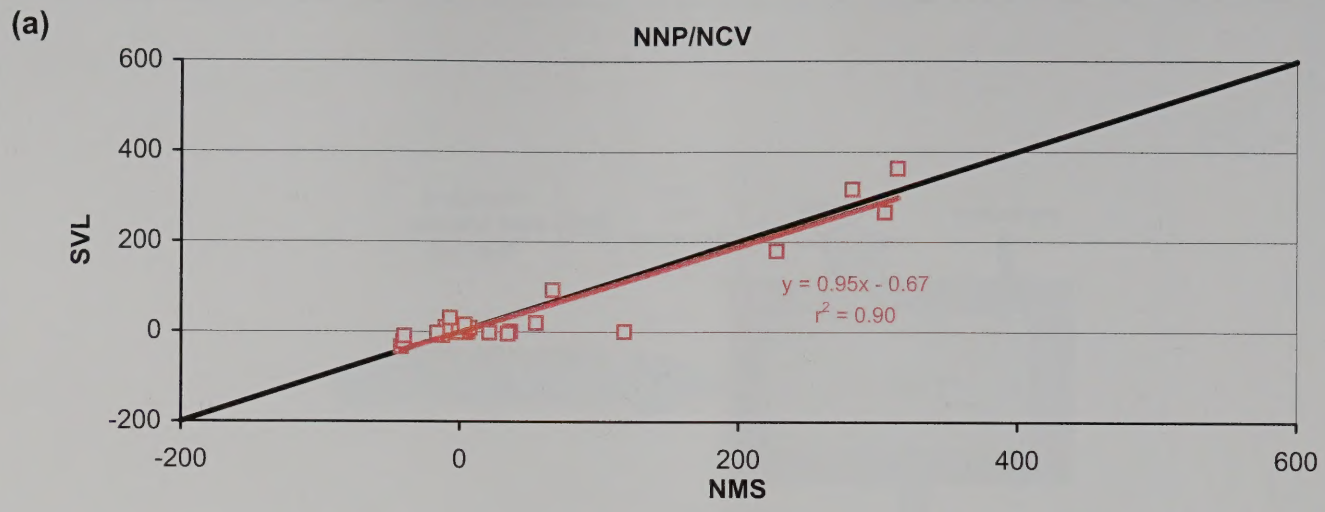
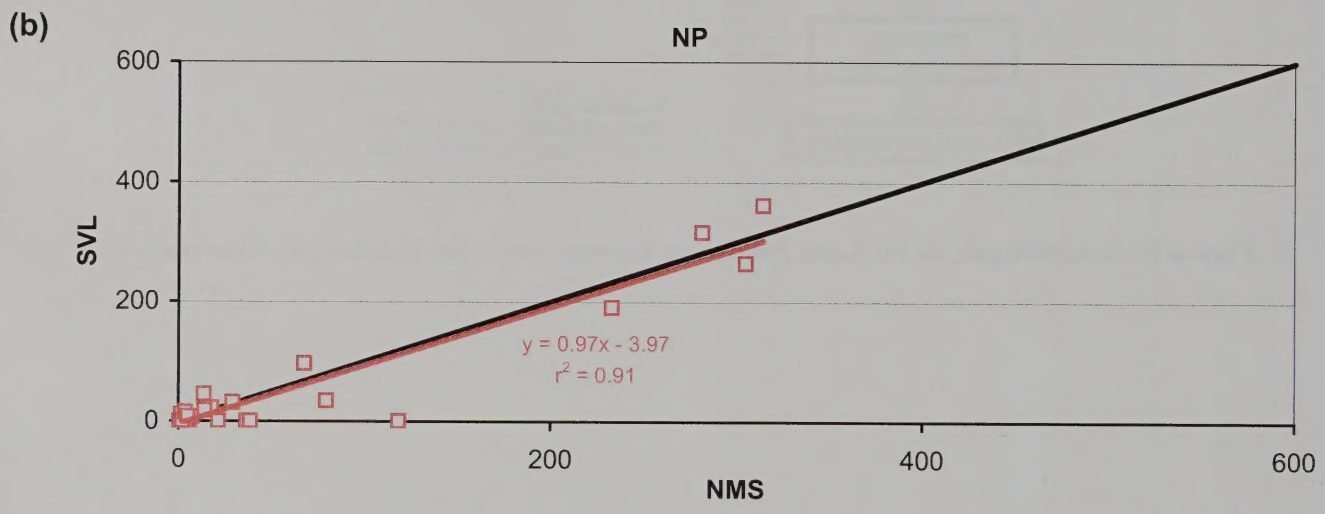
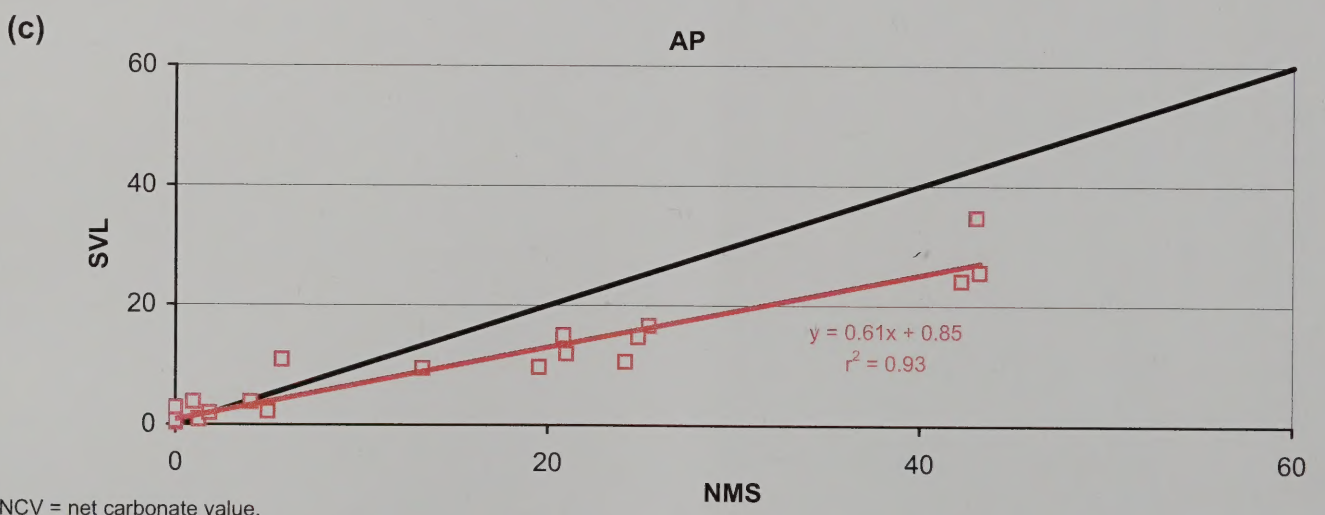


Figure B-1. Schematic of Pit Lake Modeling Components for No Action Alternative







NCV = net carbonate value.
NMS = Newmont Metallurgical Services.
SVL = SVL Analytical Inc.
All units in ppt $CaCO_3$.
ppt = parts per thousand.

GEOMEGA 3/11/11 update C08608A Newmont Genesis	Correlation of **(a)** net neutralization potential (NNP), **(b)** acid-neutralizing potential (NP), and **(c)** acid-generating potential (AP) using the SVL modified Sobek and NCV methods.	**Figure B-1-1**

The following references were omitted or incorrectly cited in the Draft EIS.

Page 2-21, 1st para.: Reference as cited in the text: (Basin Tree Service and Pest Control, Inc. 2005). Letter report authored by Jess Gilbert, Nevada Branch Manager for United Right-of-Way dba Basin Tree Service and Pest Control, Inc. dated September 13, 2005.

Replace with: **Pettit, P. 2007b.** Personal communication from Paul Pettit (Newmont) to Terry Grotbo (AMEC) concerning noxious weed areas treated by Basin Tree Service in 2005. August 15, 2007.

Page 3-6, Table 3-1: Reference as cited in the text: (BLM 2010). Bureau of Land Management. 2010. Personal communication from D. McFarlane, BLM Non-renewable, Assistant Field Manager, Tuscarora Field Office, Elko District Office to Terry Grotbo and Joe Murphy, AMEC-Geomatrix Consultants, Inc. concerning past, present, and reasonably foreseeable mining activity in the Carlin Trend. January 8, 2010.

Replace with: **Nevada Division of Environmental Protection (NDEP) 2010.** Personal communication from Connie Davis (NDEP) to Kirk Laird (BLM) concerning updated information for surface disturbance related to mining activity in the Carlin Trend. Forwarded to T. Grotbo (AMEC) May 21, 2010.

Page 3-89, 3rd para.; Table 3-15 page 3-91; page 3-99, 1st para.: Reference as cited in the text: (Ciciliano *et al* 2008). Ciciliano, D., T. Harris, D. Taylor, and D. Zyl. 2008. Analysis of Economic and Occupational Skill Impacts of the Hard Rock Mining Sector on the Elko Micropolitan S.A. Economy. University of Nevada. Reno.

Replace with: **University Center for Economic Development. 2008**. Analysis of Economic and Occupational Skill Impacts of the Hard Rock Mining Sector on the Elko Micropolitan S.A. Economy. Technical Report UCED 2008/09-04. University of Nevada, Reno. September.

Page 3-95, 1st para.: Reference as cited in the text: (Dobra 2007). Dobra, J. 2007. Economic Overview of the Nevada Mining Industry 2007. Natural Resource Industry Institute. University of Nevada. Reno.

Replace with: **Natural Resource Industry Institute. 2007.** Economic Overview of the Nevada Mining Industry 2007. Prepared by John L. Dobra, Associate Professor of Economics, University of Nevada, Reno, for the Nevada Mining Association.

~~**Eureka County. 2007.** Eureka County Master Plan. Eureka County Commission. Eureka, Nevada.~~ This reference is not cited in the Draft EIS.

Page 3-71, 2nd para.: Reference as cited in the text: (JBR 1996). JBR. 1996. Threatened, Endangered, and Candidate/Sensitive Species Surveys Barrick Data-Gathering Transects. Prepared for Barrick Goldstrike Mines, Elko, Nevada.

Replace with: **Bureau of Land Management (BLM) 2008a.** Betze Pit Expansion Project Draft Supplemental Environmental Impact Statement. August.

Page 3-40, 3rd para.: Reference as cited in the text: (NDEP 1996). Nevada Division of Environmental Protection. 1996. Waste Rock and Overburden Evaluation Guidelines.

Replace with: **Bureau of Land Management (BLM). 1996a.** Nevada Acid Rock Drainage Test Requirements. March.

Page 2-8, 5th para.: Reference as cited in the text: (Nevada State Conservation Commission 1994). Nevada State Conservation Commission. 1994 Handbook of Best Management Practices.

Replace with: **Newmont Mining Corporation (Newmont). 2007b.** Genesis Project Reclamation Plan Amendment. July 13, 2007.

Page 3-88, 4th para. and Table 3-11: Reference as cited in the text (Nevada State Demographer 2008).

Replace with: **Nevada State Demographer. 2008.** Nevada County Population Estimates July 1, 1986 to July 1, 2008, Includes Cities and Towns. Available online at: http://nsbdc.org/demographer.

Page 3-15, 2nd para.: Reference as cited in the text: (Open Range Consulting 2007). Open Range Consulting, Inc. 2007. Evaluation of factors affecting Lahontan cutthroat trout in three large watersheds. Draft report. Park City, Utah.

Replace with: **Evans, C. 2007.** Comments and edits on Chapter 3 of South Operations Area Project Amendment, Supplemental Environmental Impact Statement. August 14, 2007.

Page 3-97, 2nd para.: Reference as cited in the text: (Price and Harris 2007). Price, S. and Harris T. 2007. Analysis of Economic Impacts of the Hard Rock Mining Sector on the Elko Micropolitan Statistical Area. Technical Report UCED 2007/08-03. University of Nevada, Reno. September.

Replace with: **University Center for Economic Development. 2007.** Analysis of Economic Impacts of the Hard Rock Mining Sector on the Elko Micropolitan Statistical Area. Technical Report UCED 2007/08-03. University of Nevada, Reno. September.

Page 3-37, 2nd para.: Reference as cited in the text: (Slemmons 1983). Slemmons, D. 1983. Evaluation of Potential for Syrface Faulting and the Design Earthquake Parameters for the Gold Quarry Project of Newmont Services Limited, Eureka County, Nevada. Prepared for Sergent, Hauskins & Beckwith.

Replace with: ***BLM*** **2002.** Final Environmental Impact Statement Newmont Mining Corporation's Leeville Mine Project. Elko Field Office. Elko, Nevada.

~~**U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2009.**~~ This reference is not cited in the Draft EIS.

CHAPTER 3

PUBLIC COMMENTS AND RESPONSES

This chapter includes copies of all public comments received during the comment period on the Draft EIS for the Genesis Project. Sixteen responses were received during the public comment period, which began on April 23, 2010, and ended on June 14, 2010. The EPA Region IX sent a comment letter dated August 6, 2010, which is also included in this chapter. BLM responses to substantive comments are provided adjacent to the reproduced comment letters.

The BLM held a public meeting at the Elko District Office in Elko, Nevada on May 19, 2010, to accept comments on the accuracy and adequacy of the Draft EIS. Seventeen persons signed the attendance record for the public meeting. No written or verbal comments were submitted at the public meeting.

The following letters were received:

Letter No. 1 – Kevin Sur
Letter No. 2 – Melissa Harmon
Letter No. 3 – Nevada Department of Wildlife (K. Miller)
Letter no. 4 – Nevada Division of Environmental Protection (C. Davis)
Letter No. 5 – Bob Denham
Letter No. 6 – Eureka County Board of Commissioners
Letter No. 7 – Kevin Sur
Letter No. 8 – Nevada Division of State Lands (S. Canfield)
Letter No. 9 – Nevada Division of Water Resources (S. Gilbert)
Letter No. 10 – Nevada State Historic Preservation Office
Letter No. 11 – Adam Egan
Letter No. 12 – Mark DuBois
Letter No. 13 – Elko County Board of Commissioners
Letter No. 14 – Great Basin Resource Watch (J. Hadder)
Letter No. 15 – U.S. Geological Survey (B. Johnson)
Letter No. 16 – Bob St. Louis
Letter No. 17 – U.S. Environmental Protection Agency (received August 6, 2010)

LETTER 1

RECEIVED
BUREAU OF LAND MANAGEMENT
2010 MAY 10 AM 7:

Kevin Sur
1880 Janie Lane
Elko, Nevada 89801
H-(775) 738-4104

Genesis Project Draft EIS Comments
BLM Elko District Office
3900 East Idaho St.
Elko, Nevada 89801

May 6, 2010

Dear Sirs,

I would like to express my comments on the Genesis Project.

1. The Genesis Project will make a valuable economic contribution to the local area economy.
2. The Geneisis Project is in and adjacent to an active mining district and will use existing infrastructure thus minimizing the overall effect on the environment. Mitigation measures have been proposed where impacts to the environment are anticipated.
3. Newmont Mining Corporation has the right to enter the public lands and explore for and exploit mineral deposits under the General Mining Law of 1872.
4. Newmont Mining Corporation is a responsible operator with a long history of operating in an environmentally and socially responsible manner.

I urge the BLM to approve the Genesis Project and issue permits at the earliest possible date.

Sincerely,

Kevin Sur

1-1

Response 1-1
Comment noted.

LETTER 2

Melissa Harmon
2135 Sierra Drive
Elko, Nevada 89801
(775) 778-9504

Kirk Laird
Bureau of Land Management
3900 Idaho St.
Elko, Nevada 89801

May 17, 2010

Dear Mr. Laird,

I would like to express my comments on the Genesis Project. I feel that the positive aspects of this project, including its affect on the community, far outweigh any potential risks.

First and foremost, the affect of this project on the local economy cannot be ignored. This project extends the mine life of Newmont's Carlin Operations, and allows continued employment of thousands of Northern Nevadans. Newmont and its employees have been excellent community partners for years, and there is every reason to believe this positive partnership will continue. Newmont provides high quality jobs with excellent benefits and pay and has significantly improved the quality of life in Northern Nevada since the company arrived on the Carlin Trend in the 1960's. 2-1

Newmont has taken every step possible to ensure that the Genesis Project will have a minimal affect of the environment. The Genesis Project is adjacent to an active mining district, and will therefore be able to use some existing infrastructure, minimizing the total disturbed land. In addition, the in-pit waste dumping plan devised for this project minimizes environmental impact and demonstrates Newmont's commitment to responsible mining. Newmont has an excellent record of environmental compliance and responsibility, and there is no reason to believe this record will not continue with the mining of the Genesis project.

Newmont continues to demonstrate its desire to operate in a socially responsible manner, and the Genesis project is no exception. I urge the BLM to approve the Genesis Project and issue permits at the earliest possible date.

Thank you,

Melissa Harmon, P.E.
Chief Mine Engineer
Newmont Mining Corporation
Carlin Surface Operations

Response 2-1
Comment noted.

LETTER 3

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

JIM GIBBONS
Governor

KENNETH E. MAYER
Director

RICHARD L. HASKINS, II
Deputy Director

May 11, 2010

Kirk Laird
Project Manager
Bureau of Land Management
Elko District Office
3900 East Idaho Street
Elko, NV 89801

RE: Genesis Project DEIS

Dear Mr. Laird,

Thank you for the opportunity to provide comments on Newmont's proposed Genesis project. As a cooperating agency, NDOW has been working with the BLM on this project and is concerned with direct, indirect and cumulative impacts to wildlife resources and habitats.

NDOW's primary concern with this project and all development projects in the Carlin Trend, is the continued and incremental impacts to transitional habitat used by mule deer to migrate to and from their winter ranges. NDOW identified several biological inaccuracies in the Administrative draft, and provided a letter to the BLM on April 27, 2009. Several items in that letter have still not been addressed in this version of the document. Items that still require revision are outlined below.

Figure 3-12 identifies the CESA for mule deer habitat and includes deer migration corridors. As my previous letter stated, this map does not accurately reflect the "Pete Migration Route"; the major migratory movement through this portion of the Carlin Trend splits around the Pete pit, and the western corridor moves through the southeast portion of the Genesis Bluestar Operations Area. Please refer to the maps in the Area Six Mule Deer Working Group Habitat Management Practices document for migration corridors in the Carlin Trend. This map must be updated before the Final EIS is completed.

3-1

Response 3-1
Figure 3-12 has been revised per comment. See Chapter 2 – *Modifications and Corrections.*

Section 3.4.6.3 Cumulative Impacts, Big Game, Mule Deer and Pronghorn Antelope (pg. 3-84). The document states, "NDOW, with support from Newmont and Barrick, has begun to collect monitoring data using radio collars to identify migration routes of mule deer in this area". This is incorrect. NDOW has collared over 20 deer to determine habitat use in relation to the recent wildfires. Some of the information we gather can be used to determine where deer move through the mining activity, but the intention was never to specifically identify migration routes. Additionally, this paragraph describes the movement of 4 collared deer and used the citation

3-2

Response 3-2
Text added per comment. See Chapter 2 – *Modifications and Corrections.*

"Pettit 2008". NDOW has been able to track the movement of 10 deer through the mining activity. As stated in my previous letter, the movements of these deer clearly demonstrate the use of the two key migration routes. Four deer moved through the Pete migration corridor and three have moved through the Carlin Mine migration corridor. The three remaining deer moved through either Maggie Creek or Upper Rock Creek. This is an ongoing NDOW study and, as indicated in my letter a year ago, the most complete and current information should be used and cited in this document. Including the information from only 4 collars, and citing personal communication with Newmont personnel misleads the public on the intent and results of this project and inaccurately represents the data that NDOW has collected for the past 4 years. This paragraph needs to be revised to reflect NDOW's comments here, prior to the printing of the Final EIS.

In addition to these substantive changes, there are a few minor edits that should be considered for the Final EIS. Please see below.

Page S-12, Big Game Species. The document states, "The general area is located in transition range..." Please revise to read, "The general area is locating in *transitional* range..." 3-3

Page 2-53, Wildlife. The document states, "Where possible, land clearing and surface disturbance would be timed to prevent destruction of active bird nests or disturbance of young birds during the avian breeding season (May 1 to July 15, annually)..." These dates do not represent the breeding bird season in northern Nevada. Additionally, these dates conflict with those on page 3-68, under Migratory Birds, which states, "Before any new disturbance activities commence, avian surveys will be conducted during the breeding season for the majority of migratory bird species (March 15 – July 30)." The May 1 – July 15 dates on page 2-53 should be changed to *March 15 – July 30*. 3-4

Page 2-53, Wildlife. The second paragraph states, "The working group is developing habitat management practices..." As the Technical group has finished developing these practices and is only waiting for the Leadership group to sign and finalize this document, please revise to read, "The working group *has developed* habitat management practices..." 3-5

Thank you for providing the opportunity to provide comments on this document. Please contact me if you have any questions regarding my comments.

Sincerely,

K Miller

Katie Erin G. Miller
Eastern Region Mining Biologist
Nevada Department of Wildlife

60 Youth Center Road
Elko, NV 89801
775-777-2368
kmiller@ndow.org

cc: Nycole Burton, BLM

Response 3-3
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 3-4
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 3-5
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

LETTER 4

Connie Davis
<connied@ndep.nv.gov>
05/21/2010 11:51 AM

To Kirk Laird <klaird@nv.blm.gov>
cc Todd Process <tprocess@ndep.nv.gov>
bcc
Subject EIS comments Gensis

Kirk, It appears Table 3-1 is outdated, the footnotes indicate projects permitted by BLM as of April 2007. I would suggest the table be updated to reflected projects permitted as of December 2009. Also, I suggest a footnote for the North Area Leach project this project is permitted by NDEP, but is not permitted by BLM as the table suggests.

Since 2007 Newmont & Barrick have been swapping disturbances and modified their projects.
I have more recent data that you may want to use for this table. I have listed permitted acres for projects that have changed since the table was originally developed.

Hecla/Hollister Dev block 66 acres
Halliburton/Rossi 590 acres
Barrick/Storm UG 194 acres
Newmont/Boostrap 1271 acres
Barrick/Betze 8547 acres for mine; 233 acres for EX; 236 acres for Miekle total of 9016
Newmont/ Post 1179 acres
Newmont/Genesis/Bluestar etc 3910 acres
Newmont/ North Area Leach 1454 acres
Newmont/ Carlin 2910 acres
Newmont/Gold Quarry etc 9878 acres
Emigrant Ex 163 acres proposed mine 1468 acres

Hope this helps.

Response 4-1

4-1 Table 3-1 revised per comment.. See Chapter 2 – *Modifications and Corrections.*

LETTER 5

Bob Denham
332 Lakeport Dr
Spring Creek Nevada 89815
H-(775) 778-3522

Genesis Project Draft EIS Comments
BLM Elko District Office
3900 East Idaho St.
Elko, Nevada 89801

June 3, 2010

Dear BLM,

I would like to express my comments on the Genesis Project.

1. The placement of waste rock in previously mined pits (in-pit backfilling) is a good thing to do were it adds to the economics of the deposited. This should be encourage by the BLM and EPA.

2. The Genesis Project will make a valuable economic contribution to the local area economy. This activity will help keep high paying jobs in the community for several more years.

3. The Geneisis Project is in and adjacent to an active mining district and will use existing infrastructure thus minimizing the overall effect on the environment. Mitigation measures have been proposed where impacts to the environment are anticipated.

4. The in-pit backfill of PAG material is a good practice. This reduces the need for additional surface disturbance.

5. Newmont Mining Corporation has the right to enter the public lands and explore for and exploit mineral deposits under the General Mining Law of 1872.

6. Newmont Mining Corporation is a responsible operator with a long history of operating in an environmentally and socially responsible manner.

I urge the BLM to approve the Genesis Project as proposed and issue permits at the earliest possible date.

Sincerely,

Bob Denham

5-1

Response 5-1
Comment Noted.

LETTER 6

EUREKA COUNTY BOARD OF COMMISSIONERS
Leonard Fiorenzi, Chairman
J.P. "Jim" Ithurralde, Vice Chairman
Mike Page, Member

P.O. Box 677
10 South Main Street
Eureka, Nevada 89316

Phone: (775) 237-5262
Fax: (775) 237-6015
www.co.eureka.nv.us

June 7, 2010

Kirk Laird, Genesis EIS Project Manager
Bureau of Land Management
Elko District Office
3900 East Idaho Street
Elko, Nevada 89801

RE: 3809 (NV-013); NVN-070712; Eureka County Comment on Genesis Project Draft EIS

Dear Mr. Laird:

The Eureka County Board of Commissioners wishes to formalize its support for Newmont Mining Corporation's proposed Genesis Project. Eureka County generally finds Newmont to be responsive to environmental and economic concerns and we believe that Newmont operates its facilities responsibly.

The Draft Environmental Impact Statement (DEIS) appears to adequately address the major environmental and socioeconomic concerns affecting Eureka County and its citizens. However, we do have some comments as follows:

1. 1.4.2 Page 1-9—We concur that the proposed Genesis Project is consistent with the policies in Eureka County's 2007 Master Plan Natural Resource and Land Use Element. Please be aware that we have recently updated our Master Plan and some changes have been adopted that may have bearing on future BLM activities regarding lands and resources in Eureka County. We will forward the BLM Elko District Office the updated version.

6-1

Response 6-1
Comment noted.

2. 2.3.14.2 Page 2-51—States that monitoring "reports are submitted periodically to NDWR/State Engineer, NDEP, and BLM." Eureka County also receives and reviews these monitoring reports and we appreciate this courtesy. Given the importance of water resources to Eureka County and its citizens, we believe that stating the commitment in this EIS to continue submission of these reports to Eureka County will recommit Newmont, BLM, and Eureka County to coordinating on important water resource issues.

6-2

Response 6-2
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

3. 3.3.5.2 Page 3-16—Reasonable Foreseeable Future Activities should also include projections of population and agriculture in the north part of Eureka County, not just Elko County.

6-3

Response 6-3
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

4. 3.4.1.1 Page 3-24—In light of the recent 9th Circuit decision regarding the Cortez Hills EIS, it seems that a $PM_{2.5}$ emissions analysis should be included. The DEIS analysis appears to rely on the "surrogate approach" whereby compliance with the PM_{10} standard is assumed to illustrate compliance with $PM_{2.5}$ as well. This is a current topic of great interest on the national scale at present. The practice of using PM_{10} as a surrogate for $PM_{2.5}$ is being dropped. As noted in the DEIS, EPA is demanding states develop their own $PM_{2.5}$ regulations and to begin permitting it directly, not with the former surrogate policy. Since this is a Federal EIS, not a State air quality permit, it would be appropriate to address $PM_{2.5}$ emissions directly in the EIS, rather than referring to what is and what is not required by NDEP "for any of the mines in the Carlin Trend." Further, based on recent precedent at Cortez Hills, adequately addressing $PM_{2.5}$ now would lessen the chances of litigation on the adequacy of the EIS related to air quality. **6-4**

5. 3.4.1.2 Page 3-26—States that PM_{10} emissions "are the prevalent type of air pollutant associated with mining activities in the Carlin Trend and 3.4.1.1 page 3-24 states that "No estimate of $PM_{2.5}$ emissions has been required by NDEP during permit review for any of the mines in the Carlin Trend..." The former statement is not completely defensible without an estimate of $PM_{2.5}$ (i.e., there is no quantification of how prevalent $PM_{2.5}$ emissions are). The impacts of particulate emissions will be different whether the emissions are PM_{10} or $PM_{2.5}$. Just because the "prevalent" emissions are PM_{10} does not preclude the impacts associated with $PM_{2.5}$. This again highlights the need to include $PM_{2.5}$ emissions analysis (see comment 4). **6-5**

6. 3.4.1.2 Page 3-26—Does not provide a summary of emission rates for the fugitive sources. It has been our experience from previous projects in the mining industry, that dust impacts, while less obvious than those from a smokestack or chimney, can often times lead to high concentrations of suspended particulate matter. The pollutant of concern here is PM_{10}. Dust emissions contain significant quantities of PM_{10} and because they are emitted at or near ground level, have greater potential for local air quality impacts than particulate matter released from a smokestack or other elevated source. There is not much discussion or analysis regarding fugitive dust. If the analysis and air quality modeling included quantification of anticipated fugitive emission related to the project, please provide and discuss these numbers. **6-6**

7. 3.4.6.4 Page 3-87—We suggest that the affected County Advisory Boards to Manage Wildlife are included in reporting and at annual meetings in order to facilitate BLM and NDOW obligations to coordinate activities with local governments. These local boards, appointed by County Commissions, are the local voice for wildlife issues and have a large stake in the management of wildlife. Per NRS 501.297 through 501.303, County Advisory Boards study and give recommendations on wildlife management issues, but are not responsible for the actual preparation of policies or programs. **6-7**

8. 3.4.7.1 Page 3-93—We agree that most of the affected environment for socioeconomics is within Elko County. However, many community facilities and services of Eureka County that are affected are law enforcement, fire protection, and ambulance service. **6-8**

9. 3.4.7.1 Page 3-96—Please include discussion about the historical and future social glue provided by long-term ranching and agriculture. **6-9**

Response 6-4
BLM has reviewed existing data and a report on modeling for PM2.5 conducted by Environmental Management Associated, Inc (EMA) in July 2010. A summary of the applicable observations and modeling results are included in Chapter 2 – *Modifications and Corrections.*

Response 6-5
See Response 6-4 and additional text in Chapter 2 – *Modifications and Corrections.*

Response 6-6
The NDEP BAPC permit under which Newmont currently operates the North Operations Area (in which the proposed Genesis Project is located) regulates both stationary "stack" PM_{10} sources as well as stationary (process) "fugitive" PM_{10} sources. "Fugitive" PM_{10} sources make up over 73 percent of the 75.9 tons of PM_{10} emissions regulated under the NDEP BAPC permit, or about 56 tons of PM_{10} per year. As stated in the Draft EIS, no increase in the permitted PM_{10} emissions is expected as a result of the Genesis Project.

As also stated in the Draft EIS, "non stationary" fugitive dust emissions are also generated from wind erosion of disturbed areas and road dust. Long term ambient air quality monitoring data from Newmont's South Operations Area project demonstrate that these fugitive dust emissions do not have a greater potential for local air quality impacts (than smokestack or other elevated source emissions) and would not cause any exceedances of the PM_{10} ambient air quality standard.

Newmont's South Operations Area, located approximately 15 miles southeast of the North Operations Area, has been monitoring ambient air PM_{10} concentrations since 1997 from a site on the northeast side of the project area, just inside the fenced boundary. At this location the two stations monitor ambient PM_{10} concentrations resulting from all of the South Operations Area ongoing PM_{10} emissions, including "fugitive" emissions. Over the entire thirteen year period of record, the highest 24 hour ambient PM_{10} concentration measured has been only 60 percent of the national PM_{10} ambient standard, and has averaged less than 35 percent of the standard. Thus, over this time period the South Operations Area permitted and "fugitive" PM_{10} emissions have not resulted in any monitored concentrations approaching the PM_{10} ambient air quality standard. The Northern Operations Area is a similar but smaller operation than the South Operations Area, with less potential "fugitive" emission sources (less surface disturbance and fewer haulage miles). Therefore, although there are no ambient air quality monitors

Response 6-6 (continued)
located at the Northern Operations Area, the existing fugitive dust sources from the Northern Operations Area (including the Genesis sources) are expected to have a similar but even smaller contribution to any ambient PM_{10} concentrations than those measured at the South Operations Area.

Response 6-7
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 6-8
Comment noted. The Genesis Project represents a continuation of mining in the Genesis-Bluestar Operations Area and therefore would not create new or increased effects on Eureka County services.

Response 6-9
Beyond the scope of this document.

10. Table 4-1 Page 4-4—*Dept. of Natural Resources (Eureka County)* should not be listed under *State Agencies*. Also, it appears that *Companies and Organizations* is under *Local Government* but should be a new section heading. 6-10

11. The bulk of the Potential Mitigation and Monitoring Measures state "No proposed mitigation or additional monitoring measures..." However, many mitigation measures are discussed and committed to in the proposed action through BMPs, etc. Possibly, the statement could read "No *additional* proposed mitigation..." in order to clarify that through BMPs and commitments by the proponent no additional mitigation is specifically anticipated. 6-11

Please consider our comments and concerns. We appreciate the opportunity to comment on this DEIS and again express our support of the project.

Respectfully,

Leonard Fiorenzi, Chairman
Eureka County Board of Commissioners

cc: Eureka County Natural Resources Advisory Commission

Response 6-10
Comment noted. Text revised that Eureka County Department of Natural Resources is listed under Local Government.

Response 6-11
Commitments made by the applicant in the Plan of Operations are not Potential Mitigation and Monitoring Measures but rather part of the Proposed Action. Mitigation measures are those requirements that are specified by the regulatory agencies to reduce or limit potential impacts.

LETTER 7

RECEIVED
BUREAU OF LAND MANAGEMENT
7:30

Kevin Sur
1880 Janie Lane
Elko, Nevada 89801
H-(775) 738-4104

Genesis Project Draft EIS Comments
BLM Elko District Office
3900 East Idaho St.
Elko, Nevada 89801

June 8, 2010

Dear Sirs,

I would like to express my additional comments on the Genesis Project. Newmont Mining Corporation is a responsible operator with a long history of operating in an environmentally and socially responsible manner.

Newmont Mining has met all requirements for Regulatory approval and has followed the letter and spirit of the law in its application. The request for an extension to the comment period by the Environmental Protection Agency (EPA) is an attempt to delay this project and interfere with productive commerce.

The Genesis Project will make a valuable economic contribution to the local area economy and no delays due to the inability of the EPA to meet a deadline should be granted. All other comments have to meet this deadline and this agency has a history of making such requests in an effort to circumvent the established rules.

I urge the BLM to approve the Genesis Project at the earliest permissible time and deny any extensions to the comment period for other agencies or persons.

Sincerely,

Kevin Sur

7-1

Response 7-1
Comment Noted.

JIM GIBBONS
Governor

STATE OF NEVADA

ANDREW K. CLINGER
Director

DEPARTMENT OF ADMINISTRATION
209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
(775) 684-0222
Fax (775) 684-0260
http://www.budget.state.nv.us/

June 9, 2010

Kirk Laird
US Department of the Interior
Bureau of Land Management
Elko District Office
3900 East Idaho Street
Elko, NV 89801-4611

Re: SAI NV # **E2010-203** Reference: **3809 (N V-OI3) NVN-070712**

Project: **Genesis-Bluestar mining expansion, NMC, Eureka County**

Dear Kirk Laird:

Enclosed are comments from the agencies listed below regarding the above referenced document. Please address these comments or concerns in your final decision.

Division of State Lands

Division of Water Resources

The following agencies support the above referenced document as written:

State Historic Preservation Office

The Nevada State Clearinghouse adds the following comment:

Please provide email notification with a URL to the appropriate documents to Clearinghouse rather than printed materials.

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0213.

Sincerely,

R. Tietje
Nevada State Clearinghouse

LETTER 8

Nevada State Clearinghouse

From: Skip Canfield
Sent: Thursday, May 13, 2010 10:54 AM
To: Nevada State Clearinghouse
Subject: RE: E2010-203 Genesis-Bluestar mining expansion, NMC, Eureka County - Bureau of Land Management

The Nevada Division of State Lands suggests the following:

Utilize appropriate lighting:

- Utilize consistent lighting mitigation measures that follow "Dark Sky" lighting practices.
- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.
- A lighting plan shall be submitted with the site plan review and/or architectural or engineering drawings indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.

8-1

Response 8-1
No permanent light structures are anticipated for the Project. Mobile light units used would be positioned to reduce light pollution onto adjoining areas.

In addition, the following mitigation measures should be employed.

Utilize building materials, colors and site placement that are compatible with the natural environment:

- Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.
- For example, the use of compatible paint colors such as "sudan brown" for water tanks and other vertical structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.
- Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.

8-2

Response 8-2
No new structures would be constructed for the proposed Project.

Skip Canfield
State Land Use Planning Agency
775-684-2723
www.lands.nv.gov

LETTER 9

Nevada State Clearinghouse

From: Sue Gilbert
Sent: Wednesday, June 09, 2010 8:37 AM
To: Nevada State Clearinghouse
Subject: E2010-203
Attachments: image001.jpg

Subject: Nevada State Clearinghouse Nevada SAI # E2010-203

Draft Environmental Impact Statement

Newmont Mining Corporation

Genesis-Bluestar mining expansion

All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions under Chapters 533 and 534 of the Nevada Revised Statutes and not otherwise. Currently the operator has permits on file with the Division of Water Resources to dewater mine workings (including the Genesis area)in the Boulder Flat hydrographic basin up to a maximum of 55.7 Cubic feet per second or 25,000 gallons per minute. Excess water is diverted to storage under a primary Permit 64229, and subsequent uses of stored water are authorized through Secondary permits, which currently includes mining and irrigation use. Accurate measurements of water discharged to the facility and infiltrated to the basin must be kept. The operator shall install, maintain and plug the required monitoring wells in compliance with Chapter 534 of the Nevada Administrative Code.

Diana J. Lefler

Staff II, Associate Engineer

Nevada Division of Water Resources

9-1

Response 9-1
Comment Noted.

LETTER 10

05-27-10;10:41 ; ; * 1/ 1

Rebecca Palmer 5/29

From: Nevada State Clearinghouse
Sent: Monday, May 10, 2010 11:32 AM
To: Rebecca Palmer
Subject: E2010-203 Genesis-Bluestar mining expansion, NMC, Eureka County - Bureau of Land Management

NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 5/10/2010

State Historic Preservation Office

Nevada SAI # E2010-203

Project: Genesis-Bluestar mining expansion, NMC, Eureka County

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.
E2010-203

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local
areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Monday, June 7, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

Clearinghouse project archive

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

___No comment on this project ✓ Proposal supported as written

AGENCY COMMENTS:

Rebecca L Palmer 5/27/10

1

10-1 **Response 10-1**
Comment Noted.

LETTER 11

RECEIVED
BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
2010 JUN 15 AM 7:30

June 8, 2010

Adam Egan
156 Cascade Drive
Spring Creek, NV 89815

BLM Elko District Office
3900 East Idaho St.
Elko, NV 89801

Dear Mr. Laird:

This letter addresses my concerns over the EIS done for the Newmont Mining Genisis Project. The proposed Genisis Project has the capacity to boost economic growth while maintaining natural resources that are disturbed by mining.

Newmont mining has a great track record as a steward of the environment, the reclamation of these proposed/existing facilities will be better than its current state. Newmont has been actively involved in the community and has since 2007 worked with the EPA and BLM to facilitate this process for the Genisis Project. This project will support and sustain this areas economic growth in a period of economic uncertainty.

The proposed project is needed for the community. With Newmont and government agencies working together the project will be successful. I strongly urge you to not hesitate in generating this permit by delayed process and resubmitting. Thank you for your time.

Sincerely,

Adam Egan

11-1

Response 11-1
Comment Noted.

LETTER 12

Mark DuBois
3435 Enfield Ave
Elko, NV 89801
June 10, 2010

Mr. Kirk Laird
Kirk_Laird@nv.blm.gov
Bureau of Land Management
3900 East Idaho St
Elko, NV 89801

Comments on the DEIS, Newmont Mining Corporation's Genesis Project

Dear Mr. Laird:

I am writing this letter in complete support of the February 2010 Draft Environmental Impact Study (DEIS) for Newmont's Genesis Project. I believe the impacts of this project have been sufficiently studied and that substantial benefits to the surrounding communities far outweigh the minimal environmental impacts. In this case, the environment will be substantially improved in that open pits would be backfilled – eliminating a pit lake and providing 450 acres of revegetated habitat. In addition, mining is the best and most productive use of the land under consideration in the DEIS. Newmont provides and supports thousands of high-paying jobs to area residents and in turn, supports the local economy – the Proposed Action would extend mine life and its benefits for 12 years. Please accept this letter as a strong vote for approval of this project. Additional comments and requested clarifications are noted below.

1. In the caption for Figure 2-4, Photo No. 1, Recontoured is misspelled as Recontourd. 12-1

2. Figure B-1: I believe in the legend, Q_r= Ground volume should be Q_{gw}=Groundwater volume. 12-2

3. Page B-10: the formula for gypsum is $CaSO_4 \cdot 2H_2O$ not $CaSO_4$. 12-3

4. Page B-10: the reference (HCI 2007a) should be (HCI 2007) as in the references at the end of Appendix B. 12-4

5. Page B-11: Under Proposed Action Alternative, 'The bottom elevation of the Genesis and West Genesis pits…' should be 'The bottom elevations of the Genesis and West Genesis pits…'. 12-5

6. Page B-13, second paragraph: shouldn't the unit-gradient boundary be dh/dz = 1, not dh/dz = 0? 12-6

Response 12-1
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 12-2
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 12-3
Text revised per comment. See revised figure in Chapter 2 – *Modifications and Corrections.*

Response 12-4
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 12-5
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Response 12-6
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

7. Page B-15, third paragraph under Oxidation Modeling Results: Sulfide oxidation in the subsequent deeper layers (layers 9, 10, 11, and 12) remained unoxidized. I believe the word oxidation should be omitted.

12-7

Response 12-7
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

8. In Appendix B-I: hyphenation of compound adjectives should be consistent. If e.g., acid-neutralizing potential is used, then acid-generating potential should also be used.

12-8

Response 12-8
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

9. The caption for Figure B-1-1 is a bit confusing. Isn't the correlation between results of analytical procedures utilized by NMS (NCV method) and SVL (modified Sobek method) for the determination of NNP/NCV, NP, and AP?

12-9

Response 12-9
Figure captions have been clarified. See revised figure in Chapter 2 – *Modifications and Corrections.*

I appreciate this opportunity to comment on the DEIS. Thank you.

Sincerely,

Elko County Board of Commissioners

540 Court Street, Suite 101 • Elko, Nevada 89801
775-738-5398 Phone • 775-753-8535 Fax

COMMISSIONERS
Demar Dahl
Sheri L. Eklund-Brown
John Ellison
Charlie L. Myers
Warren Russell

ELKO COUNTY MANAGER
Robert K. Stokes

EXECUTIVE ASSISTANT
Michele A. Petty

LETTER 13

RECEIVED
BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
2010 JUN 18 AM 7:30

June 10, 2010

Mr. Kirk Laird
BLM Elko District Office
3900 East Idaho Street
Elko, NV 89801

RE: NEWMONT MINING CORPORATION GENESIS PROJECT

Dear Mr. Laird:

The Elko County Commission, as a Cooperating Agency and local jurisdiction, supports the EIS Proposed Action of the Newmont Mining Corporation Plan of Operations on the Genesis Project as submitted by Bureau of Land Management Elko District Office. While there is a marginal addition of 43 acres of disturbance, there is a great magnitude of socio-economic benefits related to the approval of the Proposed Action. Specifically, mining operational life would be extended for an additional 12 years, creating 9.700 man years of employment, $54 million in annual mining wages, $23 million in annual indirect wages, totaling 1,271 jobs and $77 million on an annual basis with direct and indirect employment. While the socio-economic benefits are immense, the environmental impacts are minimized by the Plan of Operations, and in fact provide more benefit than a No Action alternative. Additional dewatering is expected to be not necessary on a portion of the project and nearly 80% of the waste rock generated would be used to backfill several existing open pits. No new ancillary facilities are necessary, as existing infrastructure will service the expansion, all non-hazardous solid waste generated would utilize an existing NDEP approved Class III landfill and no hazardous wastes will be generated at the proposed project. In reclamation period, pits will be backfilled with waste rock and an additional 300 acres of surface ground will be realized from reclamation of backfilled pits. The additional 43 acres is not expected to result in a substantive adverse impact on wildlife and will actually eventually provide an additional 300 acres of seeded habitat for wildlife and livestock grazing.

In regards to Section 3.4.7, Social and Economic Resources, the following comments are respectfully submitted. On page 3-92, under Community Facilities and Services; Wastewater Treatment Facilities; line 3; Spring Valley should state Spring Creek. On page 3-93; Energy; there should be an addition that the City of Carlin is serviced by Wells Rural Electric. Under Ambulance Services, the Elko County Ambulance Service should also be included for service throughout the Project area. On page 3-94; Public Finance; 1st paragraph; line 3; Spring Valley should state Spring Creek. On page 3-95; 2nd paragraph; line 8; employee's lives should state employees live instead.

13-1

Response 13-1
Comment noted.

13-2

Response 13-2
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

13-3

Response 13-3
Text revised per comment. See Chapter 2 – *Modifications and Corrections.*

Elko County fully supports the concept of wise multiple use on public lands and appreciates the efforts of Elko District BLM and Newmont Mining Corporation to work diligently to mitigate environmental concerns and also provide the opportunities for responsible mining operations. The partnerships of the mining industry with Elko County, its citizens, non-profit groups as well as mining's philanthropic nature are legendary in Elko County and surrounding areas. Modern mining practices reflect the innovations of the industry and cooperative efforts with regulatory agencies and provide for a sustainable economy and quality of life for the areas in which it operates. Elko County appreciates the time, effort and due diligence necessary for the comprehensive analysis of this EIS and fully supports the Proposed Action as presented.

Sincerely,

Charlie Myers
Elko County Board of Commissioners Chair

cc: Newmont Mining Corporation

LETTER 14

GREAT BASIN RESOURCE WATCH
85 Keystone Ave., Suite K
Reno, NV 89503
775-348-1986
www.gbrw.org

Working with Communities to Protect Their Land Air and Water

Board of Directors

Julie Cavanaugh Bill, Chair

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Aimee Boulanger

Larson Bill

Ann Ronald

Staff

John Hadder
Director

Jon Cheek
Outreach/Program Coordinator

Susan Juetten
Publications/Outreach Coordinator

Patrick Freeze
Technical and Policy Intern

June 14, 2010

Bureau of Land Management
attn: Kirk Laird
3900 East Idaho Street
Elko, NV 89801
kirk_laird@blm.gov

Re: Genesis Project DEIS
3809 (NV-013)
NVN-070712

Dear Mr. Laird,

Great Basin Resource Watch appreciates this opportunity to comment on the Genesis Project Draft EIS.

General Considerations

The proposed EIS should examine how the various impacts of the Genesis Project will add to the collective impacts of other ecosystem disturbing projects in the region, namely cumulative impacts including historical mining projects. To understand the overall nature of the relationship between the pre-existing projects and the potential impact of adding the proposed mine, the follow should be conducted: 14-1

- Describe mitigation measures to prevent this contamination, including the construction of run-on/run-off channels, addition of neutralizing material collection or sedimentation ponds, and any necessary treatment or disposal of these solutions. *This should include a worst-case scenario analysis.* 14-2
- A full analysis of the flow velocities of all discharges to surface waters and discuss whether these discharges could contribute to surface and groundwater contamination, as well as scouring and sedimentation in these channels. 14-3
- Identify the potential risks surrounding ground and surface water contamination. The close proximity of the historic mining in this region should warrant an analysis of these potential environmental impacts. 14-4
- Identify all other pre-existing and planned projects or potential impacts in the study area, not just mining projects, which may contribute to cumulative impacts. Multiple large scale mining projects in close proximity will have a higher than average impact on ground water flow and quality due to dewatering. 14-5
- Future water pollution control permits should include an up-to-date analysis of the current impacts of allowable discharges to surface waters. 14-6

Cumulative impacts

A cumulative impact is "the impact on the environment which results from incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or

Response 14-1
Cumulative effects are discussed in Chapter 3 of the Draft EIS for those resources where a direct or indirect impact associated with the Proposed Action has been identified.

Response 14-2
No direct or indirect impacts have been identified associated with surface water run-on/run-off that warrants development of mitigation measures beyond those implemented or proposed by Newmont. Environmental Protection Measures proposed by Newmont are included in Chapter 2, Section 2.3.14 of the Draft EIS. The Draft EIS (Chapter 2) states that runoff from disturbed areas is captured in diversion ditches, berms, and water/sediment retention ponds (also see Response 14-3 below). Potentially acid-generating rock would be managed by encapsulation in backfilled pits and existing external waste rock disposal facilities (see Chapter 2). No treatment, discharge, or disposal of solutions would occur for the project. Development of a "worst case scenario" is not required under NEPA or CEQ regulations.

Response 14-3
Surface water run-on/run-off control structures have been designed for acceptable flow velocities and are constructed to accommodate a 100-year/24-hour precipitation event. Various best management practices are implemented to control runoff velocities, erosion, and sedimentation. Sediment control structures are inspected by Newmont after major storm events to ensure structures are not damaged and major scouring has not occurred. Maintenance, including removal of sediment from sediment ponds, is conducted periodically to maintain capacity. This information is included in Chapter 2 of the Draft EIS.

Response 14-4
Potential impacts to surface water and groundwater are discussed in Section 3.4.3 of the Draft EIS. No additional monitoring or mitigation measures beyond the current groundwater, surface water, and waste rock monitoring programs have been identified by BLM to protect water quality. No residual effects on water resources resulting from implementation of the Proposed Action have been identified. Cumulative effects from other mines in the Carlin Trend are described in Section 3.4.3.3 of the Draft EIS.

Response 14-5
Past, Present, and Reasonably Foreseeable Future Projects in the Cumulative Effects Study Area are summarized in Section 3.3 of the Draft EIS. Cumulative effects related to water resources are described in Section 3.4.3.3 of the Draft EIS. Also see Response 14-4.

Response 14-6
Renewals and amendments to Water Pollution Control Permits are evaluated by NDEP. Analysis includes review of water quantity and quality data filed quarterly by mine operators in accordance with applicable Nevada statutes and regulations. The only discharge to surface water that would occur from the Genesis Project site is permitted storm water and that associated with dewatering the compartmentalized groundwater east of the Gen Fault. As described in Chapter 2 of the Draft EIS, dewatering water would report to the existing pond and piping system associated with Barrick's Boulder Valley water system.

person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR § 1508.7.) This definition is critical to determining the proper area to be studied in a cumulative impact assessment.

Due to the pre-existing and historical mining projects that are currently in this area, a full analysis of the cumulative impacts related to ground and surface water contamination is crucial. Beginning in the late 1800's, the Carlin Trend has been an active site for exploration and mining with projects still in operation to this day. Due to the pre-existing dewatering activity associated with this historic mining, groundwater impacts are noticeable (and even noted in the DEIS) in the proposed mining site even prior to its construction. The pre-existing cone-of-depression due to historic mining west of the proposed Genesis Project warrants not only a reasonable mitigation to anticipate cumulative impacts but also a more encompassing analysis of the total projected impact. 14-7

Mercury analysis

The analysis of the potential for mercury releases for the project is incomplete. GBRW is glad to see mercury composition and some mass analysis in the DEIS which does indicate the extent of emissions from thermal processes; however, a more complete mercury accounting should be detailed in terms of a mass balance of mercury within all the process and mine components including waste rock dumps, heap leach pads, and tailings impoundments. The mass accounting calculation will yield the amount of mercury that ends up each of these facilities, resulting in a more complete mercury impact analysis, including what mitigation measures will need to be in place to assure that this mercury remains contained. 14-8

There is no discussion of the potential for fugitive mercury emissions, which is not covered within the Nevada Mercury Control Program presently. GBRW understands that this is not a negligible source of mercury, and that there is little data available at this time. However, there needs to be a discussion of at least a rough estimate of the potential for fugitive emissions and, very importantly, how these emissions would be minimized. 14-9

Air related issues

Analysis and mitigation plan of other gaseous emissions (such as sulfur oxides, nitrogen oxides, ozone, carbon dioxide, particulate matter, and lead) from the mill and roaster is needed. 14-10

Land related issues

The species or sensitive habitats that could potentially be impacted by the dewatering of the area east of the pit mine should also be identified. The current state of land resources west of this area due to historical mining already warrants a complete analysis of the impacts on both flora and fauna in this area. The addition of another mine in close proximity to the pre-existing historic mining of the Carlin Trend, regardless of the mine type, will most certainly pose some impact on biological organisms tied to the water source in this area. Since dewatering is to occur to the area east of the pit mine (transcending an impermeable fault line), a catalogue of these sensitive species, including mitigation plans for potential impacts, should be included. 14-11

Predicted impacts including cumulative effects have been evaluated in Sections 3.4.3.2 and 3.4.3.3 of the Draft EIS. The analysis includes the pre-existing groundwater cone-of-depression caused by other mines in the Carlin Trend. Also see Response 14-4.

Response 14-8

The average mercury content of waste rock that would be mined during the Genesis Project is 1.9 ppm (Newmont 1992). Based on this mercury content, approximately 1,890 tons of mercury is contained in 450Mt of waste rock. The mobility of mercury depends on the form of mercury in the waste rock and the exposure to oxygen and water. The relatively more mobile forms of mercury that may be liberated from waste rock would encounter reducing zones in the foundation of the waste rock disposal facility. Deeper, more-reducing soil horizons, appear to fix a significant portion of the mercury as mercury sulfide (HgS); a relatively insoluble form of mercury (Lechler et al. 1996).

Leach ore produced at the proposed Genesis Project would total approximately 48Mt. As described in Section 3.4.1.2 of the Draft EIS, mercury concentration in Genesis ore is approximately 4.8 ppm which equates to about 480 tons of mercury contained in leach ore. During leaching, a portion of the mercury is mobilized and captured in the carbon columns with the gold values. This mercury is eventually recovered during carbon stripping and regeneration operations at Mill 5/6. Approximately 230 tons or 48 percent of the mercury in leach ore is estimated to be recovered in processing this carbon. Approximately 250 tons of mercury would therefore remain in the leach ore pile at the North Area Leach Pad.

Also described in Chapter 3 of the Draft EIS (Section 3.4.1.2), is the amount of mercury that is captured as well as emitted during processing of Genesis refractory ore and stripping and regeneration of carbon from the North Area Leach Facility at Mill 5/6. Approximately 51 pounds of mercury would be emitted annually from processing Genesis ore and carbon under current emission control systems at Mill 5/6.

Tailing impoundments and leach pad facilities are underlain with synthetic liner systems. Mercury associated with tailing, ore piles, or process solutions is controlled and not discharged to the environment. Processing of ore at the Mill 5/6 complex includes capture of mercury from the roaster and other process facilities.

Response 14-8 (continued)
As shown in Appendix B of the Draft EIS, modeled concentrations of mercury in the pit lake that would form under the No Action Alternative would be below groundwater standards. These model results were based on humidity cell test and field oxidation test results. Under the Proposed Action (backfill of mined-out pits), model results indicate that 100 percent of the mercury mass would be attenuated in the bedrock profile.

No mercury concentrations exceeding water quality standards have been detected in area streams or in groundwater monitored by mining operations in the Carlin Trend to date.

Response 14-9
The Genesis Project Draft EIS (Section 3.4.1) provides an analysis of mercury that would be emitted into the atmosphere and deposited downwind on the land from processing ore mined by the Genesis Project. The analysis showed that at the point on land of greatest deposition from Genesis ore, deposition rates would approximate 0.1 micrograms per square kilometer per year (µg/km^2/yr). This is just under one percent of the total mercury accumulation of 11.1 g/km^2/yr. The analysis of cumulative impacts is primarily from two centers of deposition (Newmont's Gold Quarry and Barrick's Goldstrike processing activities). The center just ten miles northeast of Gold Quarry would result in a maximum deposition of just over 2.0 micrograms per square kilometer per year (µg/km^2/yr) or less than 20 per cent of the total background. The second center, 15 miles north of Goldstrike, would have a maximum deposition of just over 3 µg/km^2/yr; less than 30 percent of the background deposition.

Processing Genesis ore would not increase annual mercury emissions but would add to the overall duration of mercury emissions and deposition in the Study Area. No mercury concentrations exceeding water quality standards have been detected in area streams monitored by mining operations in the Carlin Trend to date and emission controls associated with operation of the Mill 5/6 complex would continue to control the amount of mercury released to air.

There is no current method of modeling for mercury emissions from mine components other than stationary process facilities. A recent non-peer reviewed study conducted by the University of Nevada-Reno estimated that fugitive mercury emissions from mine components other than ore processing facilities (e.g., waste rock dumps, heap leach and tailing storage facilities, and haul roads) would amount to approximately 20 percent of the mercury emissions from ore processing. Using the 20 percent figure for the Genesis Project would raise the maximum direct mercury deposition associated with the Genesis Project from .01 to .012 µg/km^2/yr. Applying the same 20 percent figure to all sources in the cumulative mercury deposition analysis, the deposition amounts would increase from 2.0 to 2.4 and from 3.0 to 3.5 µg/km^2/yr in the deposition centers. The direct impact from the Genesis Project

Response 14-9 (continued)
would be near one per cent of the total and the cumulative impacts remain less than 35 percent of the total. In addition, the continuing monitoring of surface water in the Genesis Project area does not show detectable mercury. Therefore, the BLM has concluded that the existing analysis of expected mercury deposition and impacts from mercury is sufficient and no additional analysis is necessary.
Also see new text in Chapter 2 – *Modifications and Corrections.*

Response 14-10
Gaseous emissions are discussed in Sections 3.4.1.2 and 3.4.1.3 of the Draft EIS. Carbon dioxide and ozone are not regulated under any state or federal law. Table 3-5 provides the emission levels for PM_{10}, CO, NOx, and SO_2 from permitted sources in the Carlin Trend including the Mill 5/6 complex which is under the SOAPA air quality permit. Operations in the SOAPA complex are in compliance with emission limits associated with that air permit.

On June 29, 2010, the USEPA published "Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the prevention of Significant Deterioration Program." Newmont has completed modeling of NO_2 emissions for the Genesis Project. Modeled results indicate NO_2 emissions would remain below applicable standards (EMA 2010b).

Response 14-11
Impacts associated with dewatering on physical, biological, and human resources in the Carlin Trend (including the Genesis Project) were evaluated in the *Cumulative Impact Analysis of dewatering and Water Management Operations for the Betze Project, South Operations Area Project Amendment, and Leeville Project* (BLM 2000). The compartmentalized groundwater that would be lowered during development of the Genesis Project (east side of Genesis pit) is not known to support surface water features in the Project area (see Section 3.4.3.2 of Draft EIS). Also see Response 14-4.

Water related issues

The drain boreholes to be used for dewatering the Vinini formation east of the Gen Fault are interesting. The DEIS does not describe these well nor provide calculations as to how much groundwater will flow through them. DEIS Figure 2-9 does not indicate their diameter or the size of gravel to be used to fill them. It also does not indicate the length the boreholes will extend into the carbonate Roberts Mountain formation. They will apparently perform as holes through the dam that is the Gen Fault. They will be plugged when no longer needed to dewatering the Genesis Pit. 14-12

The following questions/concerns should be addressed in the FEIS.

- Why plug the boreholes? If they are of sufficient diameter to truly act as drains, plugging will be difficult and probably marginally successful. Although the flow rate would not be great, allowing the flow to continue could help recover groundwater levels from dewatering all along the Carlin Trend. Also, the pit construction will remove a much larger portion of the fault and allow much more mixing of waters between formations to occur. 14-13

- The DEIS suggests the long-term impacts of dewatering the Vinini formation near the Genesis Pit will be limited to a small area between that proposed pit and the Post Fault (DEIS Figure 3-10). The observed difference in groundwater level across the Gen Fault provides evidence that that fault impedes flow. However, there is no real evidence the Post Fault in this area will act the same. There is no large difference in groundwater level across this fault, so the BLM should not assume the dewatering the Vinini formation between the Gen and Post faults will not cause a flow across the Post fault. 14-14

- The BLM must consider the carbonate rock, which lies below the Vinini formation (siltstone) east of the Gen and Post faults. There is little understanding of the groundwater level in this formation due to its depth (Plume, 2005)[1]. A connection between the carbonate formations across the faults would allow dewatering near the Gen Pit to extend east into the Maggie Creek basin. Plume discusses the lack of monitoring in this deeper carbonate rock, so the BLM just cannot make statements or assumptions with the presumption the facts are on their side. 14-15

- The DEIS states the Carlin Trend model was run to consider the effects of dewatering in the Genesis Pit on groundwater around the Trend. There were no noticeable additional impacts, probably because Genesis is a "drop in the bucket" compared to the existing dewatering. Unless the Carlin Trend model was adjusted to account for removing the Gen Fault and drilling boreholes through the fault, the results may be wrong. The Post Fault is a significant feature in that model; because the properties of the fault near the Genesis Pit are not known based on actual data, the conclusion drawn from the model cannot be accepted with certainty. 14-16

- If the dewatering will affect just a small volume of Vinini between two faults, there is apparently very little recharge to the volume. The DEIS should include geochemical data on this groundwater to "prove" the water within the area is old, with respect to its recharge. If it is old, it would help to verify the assumptions used in the DEIS; alternatively, the presence of 14-17

[1] Plume, R.W., 2005. Changes in Ground-Water Levels in the Carlin Trend Area, North-Central Nevada, 1989-2003. Scientific Investigations Report 2005-5075. U.S. Geological Survey, Caron City, NV.

Response 14-12

As described in Section 2.3.4 of the Draft EIS, the initial phase of drain hole installation would include up to seven borings. Depths of the borings would vary depending on the starting point at ground surface. The borings will be advanced to sufficient depths to ensure that the Gen Fault zone is pierced and the hole extends into the Roberts Mountain Formation (carbonate rocks). Determination as to when the borehole has encountered the desired zone will be made by geologists observing the cuttings generated by the drilling activity. Some uncertainty is associated with the dewatering program for the east side of the Gen Fault and, as described, Newmont would add more drain hole borings as information is gathered and as determined necessary to effectively drain down the compartmentalized zone of groundwater. This information will also be used to identify any modifications to the size and completion techniques of the drain holes needed to meet dewatering goals. Initial borehole diameter and gravel size will be proposed to the Nevada State Engineer as part of the permitting process.

Response 14-13

Plugging the drain holes is a requirement of the State Engineer (see Section 2.3.4 of the Draft EIS). The compartmentalized groundwater on the east side of the Genesis mine pit that would be drained to accommodate mine expansion would be discharged to the deeper carbonate aquifer currently being dewatered throughout portions of the Carlin Trend. The area of dewatering as shown on Figure 3-10 of the Draft EIS is small compared to the carbonate rocks currently being dewatered on a regional basis. As noted in the comment, recharge to the compartmentalized groundwater zone would likely continue to flow to the deeper regional aquifer independent of the drainhole borings as a consequence of the uppermost portions of the fault zone being removed through mine expansion.

Response 14-14
Comment noted. In the event that flow occurs across the Post Fault, consequences are expected to be similar to that described for draining the compartmentalized water associated with the Gen Fault; albeit there may be need for increased drain boreholes to accommodate additional flow. Current information indicates that the Post Fault forms a boundary on the east side of the compartmentalized groundwater zone in the Vinini Formation, and the Gen Fault forms a boundary on the west side (see Figure 3-10 of Draft EIS). This is evidenced by the difference in groundwater elevation between water level in carbonate monitor well GEN-39 (4175 ft) located west of the Gen Faults, versus the elevation of groundwater between the Gen and Post faults (5400 ft), versus the elevation of the water table associated with the Leeville Mine east of the Post fault (approximately 3800 ft).

Response 14-15
The influence of the Betze/Post and Leeville dewatering systems (which bracket the Genesis Project area) on the Genesis area is the dominant influence on lowering the regional aquifer. As described in Section 3.4.3.2 of the Draft EIS, proposed dewatering of the shallow, compartmentalized groundwater east of the Gen Fault is not predicted to affect conditions created by the larger dewatering programs being conducted by other operations in the northern portion of the Carlin Trend that may be affecting groundwater conditions in Maggie Creek basin. Ongoing monitoring programs related to the dewatering programs for Newmont's South Operations Area and Leeville operations and Barrick's Goldstrike operations will identify dewatering in the Maggie Creek basin if it occurs. Such dewatering, if it occurs, would trigger required responses from Newmont and Barrick through the South Operations Area, Leeville, and Goldstrike Plans of Operations. Genesis-Bluestar operations do not have a substantive effect on the groundwater of the deep carbonate aquifier, and therefore there are no similar requirements for Genesis-Bluestar, including the Genesis Project.

Response 14-16
There is a degree of uncertainty in any groundwater model; however, the bi-annual recalibration and completion of updated model runs being conducted by Newmont and Barrick are adding to the predictive accuracy for dewatering programs in the Carlin Trend. Evidence gathered to date regarding the compartmentalized groundwater east of the Gen Fault, including the volume that would need to be managed (i.e., drained) to facilitate mining, suggests that the influence of this source of groundwater on existing and future conditions associated with the regional aquifer is, as indicated, a "drop in the bucket." This condition will be verified by groundwater monitoring in the project area during and after mine operations.

Response 14-17
Evidence that the zone of groundwater east of the Gen Fault is compartmentalized is based on the groundwater elevations as measured on the west side of the Gen Fault versus the east side of the Gen Fault, versus the east side of the Post Fault (see Response 14-14). Dewatering wells located in and around the Leeville Mine (east of the Post Fault) are withdrawing water from the regional bedrock aquifer resulting in a water table elevation of approximately 3800 feet. This water table elevation contrasts with the compartmentalized water table elevation of 5400 feet as measured in the Vinini Formation bounded on the east side by the Post Fault and bounded on the west side by the Gen Fault. BLM has concluded that the additional testing proposed by the comment is not necessary.

significant amounts of "young" water would show that groundwater flows through the formation likely through one of the faults, a flow the BLM should identify prior to finalizing this DEIS.

- The drains would establish a temporary connection between the Vinini and Roberts Mountains formations. If the BLM chooses not to plug them, it should consider the long-term water quality and drawdown implications. As recovery occurs, there would be groundwater flow from the Vinini to the carbonate – this flow may lower in perpetuity the groundwater levels in the Vinini. This is based on the apparent pre-mining water levels in the Vinini being 5400 and the Roberts Mountain being 5275 (DEIS Figure 2-9). The fault controls the flow now but the drains will provide a pathway. 14-18

- Due to the state of the depressed post-mined area, there should be some mention or mitigation regarding the potential for water infiltration to and around the PAG cell. Although water is not expected to reach this area from either upper or lower sources, the post-mined pit will have the potential to direct water to acid-generating rock. Impacts due this potential should be assessed. 14-19

The drains would be plugged after dewatering to prevent the connections described above, but there is no plan for how this would be accomplished. It is not acceptable to "pass the buck" to the State Engineer by saying it would be to his standards. 14-20

Under the *No-Action* scenario a lake will form in the Genesis Pit, with a few water quality issues (DEIS, at 3-52). The DEIS should provide:

- The volume of the pit lake

- Discussion of whether groundwater will flow through the pit. Because the preexisting water levels in the Vinini exceed those in the carbonate, it is certainly possible. The dam provided by the faults will be removed by the pit, whether Newmont plugs the boreholes or not. 14-21

The impact to local flora and fauna due to changes in water dynamics needs to be examined, especially given the dewatering layout and plans to puncture the Gen Fault. For example, there could be the impact of the potential loss of wetland areas or springs in the distant future due to changes in the water table and groundwater flow from these dewatering plans. The analysis must address the potential loss of riparian areas, and whether the springs are on wildlife migratory routes, and if so, how migrations will be affected. 14-22

Uncertainty analysis

In general the EIS should indicate the extent of uncertainty in data presented. This is especially important when data are the result of a modeling analysis with many inherent uncertainties that will propagate through the analysis. For example, the method used in the mercury deposition has shown significant variation from observed averaged values.[2] The reader needs to have a sense of the range of values expected by the analysis presented to gauge the need for more developed mitigation 14-23

[2] U.S. EPA, "Model-Based Analysis And Tracking Of Airborne Mercury Emissions To Assist in Watershed Planning," Aug, 2008, pp. 6-1 to 6-2.

Response 14-18
As indicated in Section 2.3.4 of the Draft EIS, plugging of the drain holes is a requirement of the State of Nevada – State Engineer's office. Plugging the holes would allow groundwater in the Vinini Formation east of the Gen Fault to eventually rebound towards current levels, even though the Genesis pit would intercept a portion of the fault zone. There may be "in perpetuity" lowering of the water table in that isolated portion of Vinini bounded by the Post and Gen faults. This is not an issue of concern because there is no surface water supported by that groundwater and no prospective use of that water for any other purpose.

Response 14-19
Modeled results of potential effects of seepage through pit backfill and PAG cells are included in Section 3.4.3.2 of the Draft EIS. Impacts indicate that contribution of trace metals to groundwater from PAG cells would be limited because of placement of PAG cells above the projected rebound elevation of the regional aquifer water table. Attenuation within the underlying Roberts Formation limestone would serve to precipitate most trace metals that would move towards groundwater. Some trace metals would not completely attenuate; however, water quality is predicted to approach background levels over time and would not be a concern in the interim.

Response 14-20
Drain hole plugging will follow any regulatory requirements of the State Engineer's office for abandoning drill holes. Current regulations (NAC 534.4371) require placement of concrete grout, cement grout, neat cement or bentonite grout by tremie pipe, sodium bentonite chips or pellets specifically designed to be used to plug boreholes, in an upward direction from the bottom of the borehole to within 10 feet of the surface and by placing concrete grout, cement grout or neat cement from 10 feet below the surface to the surface. Bentonite drill mud and cement-grout mixtures of sufficient density and impermeability would be pumped into the holes to eliminate flow within the boring. Several drill hole plugging products are available on the market. A surface concrete plug would also be installed to permanently seal the upper zone of the borehole.

Response 14-21
Formation of a pit lake in the Genesis Pit under the No Action Alternative is described in Section 3.4.3.2 of the Draft EIS. Contribution of groundwater from the compartmentalized zone east of the Gen Fault is not predicted to be of sufficient volume to influence the quality or quantity of water that would be provided by eventual rebound of the regional aquifer after dewatering ceases in the northern portion of the Carlin Trend.

As indicated in Appendix B of the Draft EIS, the pit lake that would form under the No Action Alternative would be a terminal lake for the first 100 years of infilling; after reaching equilibrium, modeling suggests a possible flow-through lake, although the prediction indicates only a minor gradient to the north. Volume of the pit lake at full rebound elevation (5225 amsl) is estimated to be 865.2 million gallons or 2,655 acre/feet.

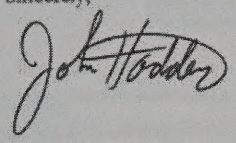
Response 14-22
See Response 14-11.

Response 14-23
Appendix B of the Draft EIS provides descriptions of modeling conducted to predict pit lake conditions, PAG and NPAG waste rock behavior and regional groundwater conditions that would occur during the operational and post-closure periods of the Genesis Project. The BLM does not believe it is practical or valuable to generate ranges of values for these data.

The descriptions include information about model inputs, assumptions, and interpretation of results. Although groundwater modeling has been ongoing for over 20 years in the Carlin Trend some uncertainty in the range of potential conditions resulting from modeling still exist.

measures or whether given the uncertainties if the impact could be too great calling for a change to the proposed action.

Sincerely,



John Hadder
Director

LETTER 15

Grotbo, Terry

From: Kirk_Laird@blm.gov
Sent: Monday, June 21, 2010 8:13 AM
To: Grotbo, Terry
Cc: brant.ivey@newmont.com; meg.burt@newmont.com
Subject: Fw: Regarding the Genesis Project

---- Forwarded by Kirk Laird/ELFO/NV/BLM/DOI on 06/21/2010 07:13 AM ----

Brenda J Johnson/WRD/USGS/DOI@USGS
06/14/2010 06:25 PM

To: Kirk Laird/ELFO/NV/BLM/DOI@BLM
cc: Gary D Lecain/WRD/USGS/DOI@USGS
Subject: Regarding the Genesis Project

Kirk,

The USGS has reviewed the Draft Environmental Impact Statement (EIS) for the Genesis Project and has no comments.

Thanks

Brenda

****

Brenda Johnson
Environmental Management Branch (EMB)
Administrative Assistant
U.S. Geological Survey Mail Stop 440
Room 5A326
12201 Sunrise Valley Dr.
Reston, VA 20192
Tele (703) 648-6832
Fax (703) 648-5644
bjohnso@usgs.gov

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15-1

Response 15-1
Comment Noted.

LETTER 16

Grotbo, Terry

From: Kirk_Laird@blm.gov
Sent: Monday, June 21, 2010 8:20 AM
To: Grotbo, Terry
Cc: brantLivey@newmont.com; meg.burt@newmont.com
Subject: Fw: Genesis project comments

---- Forwarded by Kirk Laird/ELFO/NV/BLM/DOI on 06/21/2010 07:20 AM ----

"Bob St. Louis" <Bob.St.Louis@Newmont.com> To <Kirk_Laird@nv.blm.gov>
06/18/2010 10:13 AM cc
Subject
Genesis project comments

Hello Mr. Laird:

With respect to the Draft Environmental Impact Statement for the Genesis Project, Eureka County, NV, I offer the following comments:

1. Over the 40-plus years that Newmont Mining Corporation has been mining on the Carlin Trend, there have been tremendous efforts put forth to protect the environment while providing good job opportunities for the residents of northeastern Nevada. This project would continue this time-proven track record.
2. The project's additional disturbance is very small in comparison with the acreage previously disturbed by mining activities at Genesis. Continuing mining activities in a relatively old district should always be encouraged.
3. Minimal dewatering is expected, so it is unlikely that this project will adversely impact water resources.
4. The backfill plan will eliminate a post-mining pit lake, which is very beneficial for the long-term use of the land and protection of groundwater.
5. The proposed Adaptive Management Plan will allow for the flexibility necessary to ensure resource protection as the project progresses.
6. This project will allow for continued utilization of Newmont's existing processing facilities.

In summary, I fully support the Proposed Action, and sincerely desire to see this project move ahead.

Regards,

Robert M. St. Louis

16-1

Response 16-1
Comment Noted.

Sr. Hydrologist
Carlin Surface Operations
Newmont Mining Corporation
775-778-4005

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LETTER 17

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

AUG 16 2010

OFFICE OF THE
REGIONAL ADMINISTRATOR

Ron Wenker, State Director
Bureau of Land Management
1340 Financial Blvd.
Reno, NV 89520

Subject: Genesis Mine Project Draft Environmental Impact Statement (EIS), Elko County, Nevada [CEQ # 20100154]

Dear Mr. Wenker:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (Draft EIS) for the Proposed Genesis Mine Project (Project). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act (CAA).

We have rated the Draft EIS as a "Category 3 - Inadequate Information" (see Enclosure: "Summary of Rating Definitions and Follow-up Actions"). The "Category 3 - Inadequate Information" rating is based on the Draft EIS's failure to offer an adequate prediction of the true acid producing potential of the waste rock. While data from static testing indicate that a high percentage of the waste rock to be generated by the proposed project falls either under the category of potentially acid generating (PAG) or "uncertain", the standard kinetic tests necessary for determining the true ratio of PAG to non-PAG were not run to equilibrium. Without these data, the Draft EIS could not provide a complete analysis regarding water quality impacts, nor could it establish financial assurance measures for mine closure and remediation. EPA's comment letter of June 18, 2009, regarding our review of the Administrative Draft EIS, identified these same issues. 17-1

We do not believe that the Draft EIS, as written, supports the Bureau of Land Management's (BLM) conclusion that the proposed action would not contaminate groundwater and surface water. Proceeding with the proposed project without first completing the geochemical analysis and subsequently reevaluating proper mine design could result in unacceptable acid mine drainage and necessitate long-term water quality treatment. In addition, an Adaptive Management Plan (AMP) was proposed in order to compensate for the inadequate waste rock characterization. This is an unacceptable approach to NEPA compliance and, if an AMP is to be used in conjunction with the proposed project, it will need to be revised, based on complete geochemical analysis prior to Project approval, and accompanied by adequate financial 17-2

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Response 17-1
A humidity cell test (HCT) is intended to show the potential for acid production under an accelerated time frame and very conservative conditions. When the tested parameters (pH, redox, cumulative sulfates, etc) produce a flattened trend the test is considered completed. Assessment of the 20 Genesis HCT samples after 20 weeks indicated that four samples were clearly acidic, and two were trending acidic. Those six samples were classified as PAG. Operational tests would classify all such rocks as PAG for handling and disposal purposes. To address the additional 14 samples classified as non-PAG after 20 weeks, a volunteered supplemental testing program is planned to confirm the original HCT interpretation. These HCT will be run as long as necessary (accounting for the total mass of pyrite and mineralogy of each sample) to determine if they will produce acidity beyond 20 weeks.

Response 17-2
The overall determination by BLM was that the waste rock characterization completed by Geomega for Newmont was adequate. The AMP was proposed in discussions between BLM and Newmont to address concerns regarding that portion of the waste rock which did not have definitive humidity cell test results. Newmont's proposed operational classification identified PAG/non-PAG waste rock for these samples and the supplemental testing program will confirm whether previous results are adequate for a longer HCT period.

assurance. Although BLM's surface mining regulations provide for using the NEPA document as one option to disclose financial assurance information, with regard to the Genesis Mine Project and others, BLM has taken the position that it does not address financial assurance in EISs. BLM did, however, include such information in the 2002 EIS for the Phoenix Mine and there are significant lessons to be learned from the history of the long-term trust fund established for that project. We believe the Phoenix fund started out -- and continues to be -- significantly underfunded and includes inappropriately variable and risky investments, as demonstrated by the loss of approximately 40 percent of the fund in late 2008. Additional discussion of the inadequacies and other issues related to the Genesis Draft EIS is enclosed. 17-3

I have requested that my staff arrange a meeting with the Elko Field Office to discuss our comments and the next steps for resolving the inadequacies and other issues identified in Draft EIS. If the "Category 3 - Inadequate Information" issues cannot be resolved, this project could be a candidate for referral to the President's Council on Environmental Quality (CEQ) in accordance with Section 309 of the Clean Air Act.

If you have any questions, please call me at (415) 947-8702 or have your staff contact Carter Jessop, our lead NEPA reviewer for this project, at (415) 972-3815. Please send two copies of the revised or supplemental DEIS to this office (mail code CED-2) at the same time it is it is made available to the public.

Sincerely,

Jared Blumenfeld

Enclosures:
"Summary of Rating Definitions and Follow-up Actions"
EPA's Detailed Comments

cc: Ken Miller, BLM – Elko District Office
Leo Drozdoff, Nevada Division of Environmental Protection
Willie R. Taylor, Department of Interior

Response 17-3

The Elko District BLM has been unable to locate the regulations that the letter refers to. The Elko District BLM also notes that it is BLM policy to not address reclamation bonds in a NEPA document. That such may have been done in other NEPA documents does not and has not created binding precedence.

EPA Detailed Comments on the Draft Environmental Impact Statement (EIS) for the Genesis Mine Project, Elko County, Nevada [CEQ # 20100154] – August, 2010

"Category 3 - Inadequate Information"

Waste Rock Geochemistry

EPA believes that the geochemical characterization methods employed are inadequate. Static testing results of Genesis waste rock samples categorized as Codes 1 through 5 indicate either uncertain or positive acid generating potential. Waste rock in these categories constitutes 65 percent of the waste rock in the proposed Genesis backfill and 98 percent of waste rock in the proposed West Genesis backfill. However, based on 20-week kinetic tests, the Draft EIS (DEIS) states that only material categorized as Code 1 and Code 2 contain potentially acid generating (PAG) material. EPA believes that the kinetic tests were stopped prematurely, and therefore, unlikely to predict the true acid potential of the samples. The tests should have been run longer if they are to support BLM's conclusion that only a small percentage of the waste rock should be handled as PAG. BLM has required several Nevada mines to conduct kinetic tests far longer than 20 weeks to more reliably predict how mine rock will react over the long term. For example, the Mount Hope, Round Mountain, and Phoenix mines have all run kinetic tests for longer than one year. 17-4

Under the proposed project, the Section 5 waste rock facility would have a 10-foot thick rind of carbonate-rich waste rock around the PAG cell. In the Section 36 waste rock facility, PAG waste rock would be placed above the carbonate-rich waste rock and be completely encased with a ten-foot thick layer of non-PAG material. The in-pit PAG cells also depend on carbonate layers to attenuate contaminants released in acidic leachate. However, depending on the dissolution rates of minerals in the waste rock surrounding or underlying PAG material with neutralizing material may not be effective in neutralizing the PAG material over the long term. In addition, based on our review of the static tests conducted for this project, we believe the amount of PAG waste rock could be far higher than the Project proponent Newmont Mining Corporation (Newmont) has predicted. Additional information is needed regarding the geochemistry of the waste rock.

> **Recommendation:** Consistent with BLM's Instruction Memorandum issued January 8, 2010[1] as well as the practice at other Nevada mines, we recommend much longer kinetic tests (up to one year or longer) be conducted on ore and waste rock samples to more reliably characterize the waste rock and ensure consideration of appropriate waste rock management measures. A revised or supplemental DEIS should be prepared that describes, in detail, waste rock geochemistry, including the availability of net neutralizing waste rock during each mining/disposal phase, and measures that would be taken to ensure sufficient neutralizing capacity and/or other necessary controls during each phase. 17-5

The very short-term paste pH and the net carbonate value (NCV) results reported in the DEIS may dramatically under predict the longer-term acid generation potential of the 17-6

[1] Nevada BLM, January 8, 2010, Instruction Memorandum No. NV-2010-014, Rock Characterization and Water Resources Analysis for Mining Activities

Response 17-4
The ASTM D5744-07 method calls for a 20 week minimum test or to continue the test until results of the tested parameters plateau. It is not necessary to continue the test if the determinations for those that have not reached a plateau are worst case, e.g. classified as PAG. As mentioned in Response 17-1 a volunteered supplemental testing program will be initiated to address questions about the classification of remaining samples.

Response 17-5
The three Geomega reports, which were all provided to EPA in the spring of 2008, provide the detailed rock geochemistry and mineralogy. Table 2-4 in the Draft EIS provides the accounting for production of PAG and Non-Acid Generating (Non-PAG) rock under existing rock classification. Table 2 in the Adaptive Management Plan (AMP) provides an accounting for PAG and Non-PAG rock if the entire 100Mt of waste rock classified as uncertain based on NCV values is reclassified as PAG. Throughout the mine life, adequate Encapsulation Material (defined as waste rock with an ANP/AGP ratio of at least 3:1) is available to encapsulate the PAG material, even if the 100Mt is reclassified as PAG.

Response 17-6
The paste pH test identifies the presence of the sulfates and the resulting early acidity where the NCV value does not. In both cases (samples 7 and 8), the NCV value was above 0, but the samples showed acidity in the HCT. Both samples were oxidized decalcified carbonates. Because paste pH is sensitive to sulfates, the suggestion about composites 7 and 8 is that the acidity is due to in-place oxidation prior to mining. The NCV value identifies not only the great majority of PAG at Genesis but also the waste rock that would be the most acidic. The paste pH test identifies that small percentage of the waste rock that is acidic early because of the presence of sulfates. The supplemental testing program will incorporate the Nevada-modified Sobek method which utilizes the hot water leach to account for sulfates due to oxidation.

Response 17-6 (continued)

The initial acidity during the 20 week HCT test is most likely to be rinsing of sulfate minerals from the sample. Subsequently we would expect the carbonate mineral dissolution to dominate with the samples likely to become slightly alkaline. Since we wish to avoid a situation where such rocks might produce acidity early, if exposed to the elements, rocks of this type will be handled as PAG. The following table shows the net alkalinity for the composite samples identified as PAG. As noted, composites 7 and 8 have net alkalinities that are much smaller than those of the other composites identified as PAG. The NCV values for 7 and 8 are slightly positive, while the NCV values for the other samples are distinctly negative. The paste pH test is used operationally because it captures for classification as PAG those weakly acidic waste rocks that have sulfates that are represented by composite samples 7 and 8. As noted by the EPA comment, the paste pH test is only appropriate for weathered materials. That is how the test is used in this application: testing for acidity due to sulfates, which are the product of weathering/oxidation.

Composite Number	Net Alkalinity	Net Carbonate Value
7	-85.56	.06
8	-129.56	.21
26	-11648.86	-1.85
27	-803.20	-54
30	-3361.64	-1.75
31	-1009.49	-4.4

samples. The paste pH test comes out of the soil science community and is designed for weathered material, such as soil. The test is not predictive when applied to unweathered rock, as it was for the Genesis Project.[2] Furthermore, it must be recognized that the results from the static testing and the final humidity cell pH are not necessarily a good indicator of the ability of waste rock or ore to generate contaminated leachate. As discussed in the DEIS, all waste rock generated at the site has the ability to generate contaminated leachate. Appendix B indicates that all the mined material has a relatively high ability to generate leachate with elevated metals and other constituent concentrations. Independent of the PAG results, the mined material should be isolated from groundwater and surface water as part of the mine management system.

While geochemical testing does add to confidence in predictions, such predictions have limits. Examples include many cases in which geochemical testing, including kinetic testing conducted over long periods of time, have yielded results which proved to be inconsistent with actual conditions at subsequent mining operations.[3] Only seepage from waste rock piles can provide "actual" estimates of the potential to produce acid. The reason for the inconsistencies can include limitations of the testing methods, sample representation, and extrapolation of predictions from test results. Considering the history of mining in the project area and existing waste rock storage piles in the project vicinity, the collection and analysis of seepage samples from existing facilities could provide a higher degree of certainty regarding the potential for both acid and non-acid contamination as a result of the proposed Project.

> **Recommendation:** Further analysis is needed to properly assess the potential environmental impacts of the waste rock generated under the proposed project. The EIS should identify the potential impacts to groundwater resources resulting from the placement of PAG materials either above or below the groundwater table. We recommend that sampling and testing of seepage from existing waste rock storage facilities and any representative backfilled mine pits be completed and included in the revised or supplemental DEIS. This analysis should identify the sites from which seepage was collected and include justification for why the selected sites are considered representative of the geochemistry of the proposed project.

EPA believes groundwater quality could be adversely affected by improper design of the mine facilities. Newmont's modeling assumes that the PAG encapsulation cells and underlying carbonate rock will be 100 percent effective in limiting the movement of contaminated leachate to groundwater and surface water at the Genesis Project. The DEIS predicts that any potential groundwater impacts would be adequately mitigated by the limestone and the unsaturated zone underlying the PAG waste rock storage area. However, the underlying limestone may not be available for contact or reaction with contaminated leachate emanating from the mine sources. This is due to both the potential for fracture flow to be the predominant flow path, reducing or

[2] It is notable that the paste pH test has not been used for a number of years for mine permit applications in Pennsylvania because the State's Department of Environmental Protection has concluded that it is not predictive of acid mine drainage formation (Brady et al, 1998).

[3] Kuipers, J.R., Maest, A.S., MacHardy, K.A., and Lawson, G. 2006. Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements. Prepared for Earthworks. 195pp. Available online at: http://www.mine-aid.org/predictions/

17-7

Response 17-7
Management of waste rock disposal facilities is consistent with 40 years of mining on the Carlin Trend. No negative results from waste rock handling except for acid mine drainage (AMD) at Rain, which is being treated by Newmont and has no adverse environmental impacts off-site, and the slope failure at Gold Quarry which covered the adjacent highway, have been identified during these 40 years of mining.

17-8

Response 17-8
Neither BLM nor NDEP representatives have observed seepage from any waste rock location at Genesis-Bluestar or the neighboring Goldstrike Mine operated by Barrick.

Potential impacts to groundwater as a result of placement of PAG in encapsulation cells are described in the Draft EIS (see Section 3.4.3.2). Potential impacts to groundwater were determined to be minimal as a result of this analysis and therefore, an assessment of the potential impacts of placement of PAG below the elevation of the rebounded water table was deemed unnecessary. In addition, it must be noted that the Water Pollution Control Permit (which includes the Waste Rock Management Plan) for the Genesis-Bluestar Operations issued by the Nevada Division of Environmental Protection requires that all PAG be located in cells above the rebound water table.

17-9

Response 17-9
Newmont's model calculates results based on peer-reviewed established models and testing (e.g. batch testing) that are standard in the industry. No test is ever 100 percent accurate or 100 percent certain. BLM does not believe there are any unreasonable uncertainties in the analysis.

eliminating contact times, and the potential for the limestone to become unavailable for reaction due to rimming that often occurs after initial contact with acidic solutions. In addition, flow through the unsaturated zone may not take on the characteristic of "slow dispersed movement," but rather may find the most favorable flow paths, or "finger flow," through the unsaturated zone, which has been observed and investigated at other mine sites.[4]

Recommendation: The revised or supplemental DEIS should provide realistic analyses of the transport and fate of all potential leachate constituents as they flow through the waste rock and underlying unsaturated and saturated zones. It should discuss the potential impacts to surface water and groundwater resources should the waste rock or spent ore (at the North Operations leach pad and Mill 5/6) generate contaminated leachate either in the short- or long-term. In addition, it should address the monitoring and mitigation that will be in place to identify, isolate and treat any potential contamination. 17-10

Recommendation: The revised or supplemental DEIS should consider the placement of shallow subsurface monitoring wells at the down gradient edge of waste rock disposal facilities and backfilled pits in order to monitor for possible movement of contaminated water in surface-layer sediments. 17-11

Backfilled waste rock would result in elevated contaminant levels in groundwater. According to the DEIS (p. S-18), "[a]s the regional groundwater system rebounds following cessation of regional dewatering, waste rock backfill in the Genesis Pit would react with incoming groundwater and temporarily result in relatively high concentrations of constituents including sulfates and metals." The DEIS is vague regarding the predicted fate and transport of constituents in groundwater from in-pit and above ground waste rock, and the time frame of this "temporary" condition; however, we understand it may be hundreds of years (pers. comm. Kirk Laird, BLM). Appendix B of the DEIS indicates that most constituents released from the waste rock would be attenuated. However, EPA believes that arsenic and other metalloids would most likely not be attenuated as a result of contact with limestone, and the production of alkaline waters by the material surrounding the PAG rock could result in greater concentrations of arsenic and other constituents.

Recommendation: The revised or supplemental DEIS should provide more detailed information regarding the predicted transport and fate of constituents in leachate from backfilled waste rock, as well as waste rock disposed above ground. The revised or supplemental EIS should also recognize that any time alkalinity is proposed as a means of dealing with acid drainage there is potential for an opposite adverse reaction that could make other potential pollutants more soluble. As we have discussed with BLM in the past, this is a critical issue that must be addressed in the EIS and a key component of each alternative analyzed. 17-12

[4] Maest, A.S., Kuipers, J.R., Travers, C.L., and Atkins, D.A. 2005. Predicting Water Quality at Hardrock Mines: Methods and models, uncertainties, and state-of-the-art. Prepared for Earthworks. 77pp. Available online at: http://www.mine-aid.org/predictions/

Response 17-10

BLM does not dispute the possibility of the potential for fracture flow, particularly in a geological area where the ore deposits are closely related to faults and complex overthrusting. However, this is typical of the great majority of hard rock mining deposits. Were BLM to require 100 percent certainty from all such mining, mining in the USA would come to a virtual halt. BLM understands its mandate to be that which "recognizes the Nation's need for domestic sources of minerals" and to process and approve mining on the public land which does not represent undue and unnecessary degradation. Newmont's proposed management of waste rock, considering the history of mining on the Carlin Trend and mining technology in general, does not represent any undue and unnecessary degradation – particularly in view of the approval by the cognizant regulatory authority for water resources, NDEP. Also, the recommendation calls for discussing "potential impacts to surface water and ..... should the waste rock or spent ore generate contaminated leachate . ...". BLM is not obligated under NEPA to address speculative possibilities and does not consider the possibility to be sufficient likely to be worth additional analysis. BLM has completed its obligation by providing analyses and arriving at appropriate conclusions based on the analyses.

Response 17-11

The BLM could require installation of monitoring equipment if necessary.

Response 17-12

The Geomega reports on the geochemistry of the Genesis Project, which were provided to EPA in the spring of 2008, provide analyses of the geochemistry resulting from potential water reactions with the waste rock materials, both from meteoric water and the rebounding water table. The reports contain graphs depicting expected constituent levels for the Genesis Pit (backfilled) in Appendix E of the Geomega report titled "Geochemical Characterization of the Genesis Project, Proposed Action." In addition the report provides an explanation for the conclusion that arsenic (and other metalloids) won't be a contamination issue, including geochemical analysis for the Genesis Project and observations from similar projects/similar geology at Getchel, Turquoise Ridge, and Robinson mines. BLM understands that alkalinity has its own effect on solute concentrations and transportation.

Other Environmental Issues

Inappropriate Use of Adaptive Management

EPA believes the Genesis Mine Adaptive Management Plan (AMP) is unacceptable and should not be implemented. As stated above, EPA believes that the geochemical kinetic tests conducted for the Genesis Mine Project (Project) were stopped prematurely and should have run longer for more reliable predictions of the acid generating potential of the waste rock. For this reason, we advised BLM, in our June 18, 2009 comments on the Administrative Draft Environmental Impact Statement (ADEIS) for the Project that a more effective management tool was needed to separate PAG and metal-leaching rock from environmentally benign rock to ensure that the mine is properly managed over the long-term by the site operator. Rather than conducting further kinetic tests, Newmont drafted an Adaptive Management Plan (AMP) for BLM's approval, which defers starting the tests until after a Record of Decision (ROD) is signed. BLM incorporated the AMP into the DEIS. Under the AMP, all waste rock generated during the first year of operations would be treated as PAG material, while additional geochemical characterization is completed.

Normally, an adaptive management approach would be applied to adjust a project management plan only *after* the lead federal agency has made a good faith effort to predict potential impacts in a scientifically reliable manner, allowing adjustments to be made and management to be improved, as information is discovered during the life of the project. Department of Interior guidance[5] requires that an AMP must be detailed enough to identify what steps would take place under several scenarios, and is not a substitute for adequate testing up front, which can influence mine design. Furthermore, an AMP should not be used as a substitute for a thorough and adequate analysis conducted pursuant to the National Environmental Policy Act (NEPA) where information needed for the analysis can reasonably be obtained prior to completion of the environmental impact statement. Several static and kinetic test methods are routinely used in geochemical characterization for EISs in other Nevada BLM offices, and this information can be reasonably obtained during the NEPA process. It remains unclear why BLM has not required completion of the geochemical characterization for the Genesis Project.

The AMP addresses only one potential issue: future identification of more PAG waste rock than was initially predicted in the DEIS. The sole contingency measure identified for this scenario is for additional PAG encapsulation cells to be constructed, as necessary, up to the potential maximum amount of PAG waste rock initially predicted by Newmont, and, if testing indicates that PAG rock exceeds this amount, the AMP stipulates that operations would be suspended until a revised waste rock management plan could be approved by BLM. This is not an alternative that has been analyzed throughout the DEIS, nor is it one that could be easily implemented, given the job loss implications. Furthermore, based on our review of the static tests conducted for this project, we believe the amount of PAG waste rock could be far greater than Newmont has predicted. If this turns out to be the case, mining would need to be suspended at the Genesis Mine while BLM considers options for waste rock disposal, which should have been evaluated in the EIS. As we have stated to BLM regarding a similar proposal for the Emigrant Mine project,

[5] Adaptive Management: The U.S. Department of the Interior Technical Guide, 2009. Available online at http://www.doi.gov/initiatives/AdaptiveManagement/TechGuide.pdf

EPA does not believe that suspending mining operations because due diligence was not conducted during the NEPA process is an acceptable approach to mine permitting. In response to our disapproval of that approach, BLM deleted that option from the proposed Emigrant Mine AMP.

> **Recommendation:** The Genesis Mine AMP is unacceptable and should not be implemented. The revised or supplemental DEIS should be expanded to include more detailed geochemical characterization analyses and to analyze all reasonable alternatives to the proposed action. If an AMP is to be used for the Genesis Mine, it should not be used as a substitute for due diligence during the NEPA and planning stages. Rather, it should be designed and used as a life-of-mine tool to monitor and adjust management actions based on feedback from monitoring during operations and after closure.

Based on statements and protocols in the AMP, we have serious concerns about BLM's intended approach in conducting necessary geochemical tests for the Genesis project. For example, according to the AMP, the planned schedule for completion of supplemental testing studies is within one year of Newmont receiving the necessary permits and authorizations for the Genesis Project. Before testing can be started, however, it could take several months for agreement between the parties on the selection of samples, appropriate/desirable tests and protocols, etc. Therefore, completion of properly conducted kinetic tests could take longer than one year following receipt of authorization. As another example, BLM's recent Instruction Memorandum states that BLM and the Nevada Division of Environmental Protection (NDEP) will determine when it is appropriate to use Net Carbonate Value (NCV) to supplement the required static tests (i.e., acid-base accounting (ABA) using "NDEP" Modified Sobek Procedure, net acid/alkaline production, and Meteoric Water Mobility Procedure (MWMP)). The policy also indicates that paste pH tests may only be used with agency approval. The AMP, however, indicates that the Supplemental Waste Rock Characterization (SWRC) Study includes several protocols that appear to be inconsistent with the instruction memorandum, including some using NCV and paste pH tests.

> **Recommendation:** Additional information should be included in the revised or supplemental DEIS to demonstrate how all geochemical testing will comply with BLM's recent instruction memorandum. If NCV and paste pH tests are to be used, the justification for doing so should be thoroughly explained.

<u>Alternatives Analysis</u>

The DEIS provides detailed consideration of only the Proposed Action and No Action alternatives. The DEIS justifies this by stating that neither BLM nor any cooperating agency proposed an alternative that provided an environmental benefit, while still satisfying the project's purpose and need (p. S-4). EPA believes that this justification for eliminating a number of alternatives in Section 2.4 of the DEIS is invalid. In accordance with 40 CFR 1502.14, a DEIS must consider all reasonable alternatives that reduce potential environmental impacts. As discussed below, EPA believes that the project poses a potentially significant risk to groundwater quality, and, in our comments on the ADEIS, we specifically recommended several alternatives that could reduce that risk. BLM has not demonstrated that those alternatives are unreasonable.

17-13

Response 17-13

The Genesis Adaptive Management Plan (AMP) was developed to provide an interim management plan which incorporates sufficient engineering and environmental controls to prevent environmental release of heavy metals and acid while reassessing any uncertainties in the previous testing. The AMP also outlines the handling and treatment methods for waste rock volumes mined in subsequent years as determined by HCT and other geochemical test results. The AMP discounts the existing kinetic test results in favor of EPA's assumed longer-term HCT acid generation for the non-PAG tonnages that are most likely to be reclassified as PAG (samples with lower carbonate) and assumes those may produce acidity past 20 weeks in an HCT. The AMP also shows that revisions to the PAG tonnages based on a reasonable assessment of the existing HCT data can be properly managed and disposed of in PAG cells during the supplemental testing period. **An updated AMP is included as Appendix A in this Final EIS.**

17-14

Response 17-14

See Response 17-6 and 17-13.

Specifically, the placement of PAG materials below groundwater level in backfilled pits, disposal of PAG and neutral waste rock in alternate locations, and use of alternate cover designs, all have the potential to reduce groundwater impacts and should, therefore, be considered. Furthermore, based on the additional geochemical information that will be collected, the revised or supplemental DEIS should consider and discuss whether measures may be needed to mitigate potential future problems with existing waste rock disposal facilities. If so, the revised or supplemental DEIS should evaluate all reasonable alternatives for redesigning and/or rehandling existing waste rock disposal facilities.

> **Recommendation:** The revised or supplemental EIS should evaluate the placement of PAG cells within in-pit waste rock below the water table, as well as placement of submerged PAG cells in pit lakes. The document should also evaluate other design features, such as covers for waste rock facilities located both within pits and outside of pits, and evaluate all reasonable alternatives for redesigning and/or rehandling existing waste rock disposal facilities, if necessary. In addition, significantly more detailed information is needed in the EIS to evaluate the comparative merits of the alternatives, including alternatives not yet included in the analysis.

17-15

The DEIS does not evaluate alternatives to avoid long-term uncontrolled surface water and groundwater contamination from mine facilities. As has been demonstrated at numerous mine sites where acid drainage has occurred, water infiltration and air flow can occur deep inside the waste rock dumps, but the DEIS does not adequately demonstrate that such exposures will not occur at the Genesis Mine. It also appears that non-acidic leachate from the proposed project is projected to exceed water quality standards and must be controlled.

In light of the uncertainties discussed above and the potential for contaminated leachate to affect groundwater and surface water resources, we believe the proposed waste rock handling methods may be inadequate to protect these resources. The revised or supplemental DEIS should describe and discuss alternatives to prevent acidic and non-acidic leachate from contaminating surface water and groundwater, as well as remedial measures that could be taken should these preventive alternatives fail. Properly sited and designed facilities could help minimize the need for, and costs of, long-term post-closure treatment activities.

> **Recommendation:** We recommend BLM evaluate several alternatives to avoid surface water and groundwater contamination from mine facilities. The revised or supplemental DEIS should evaluate alternatives to prevent, control, capture, and/or treat all leachate, including non-PAG leachate, from the entire mine site. The development and evaluation of alternatives should be based on the cumulative geochemical predictions for all past, present, and foreseeable future waste rock at the mine, and, at a minimum, this evaluation should address the following.
>
> - Relocation of facilities should be evaluated to determine if control of leachate could be facilitated by careful site design (i.e., to take advantage of, or avoid, certain geologic or hydrologic features).

17-16

Response 17-15

For an alternative to be developed it must, in addition to being viable, address some identified resource impact or concern. The alternative must be reasonable in that there must be a reasonable prospect that the alternative will be beneficial, address an identified impact or concern, and meet the purpose and need for the Proposed Action. Each of the alternatives addressed in the Draft EIS as "Considered but Eliminated from Further Analysis" did not meet those requirements. Ground water is predicted to rebound to 5250 feet amsl. No PAG material nor interim material mined prior to completion of the HCT would be placed below this level. Since no impact has been identified with the Proposed Action (placement of PAG in encapsulation cells above the pre-mining water table elevation), an alternative that evaluates placement of PAG below the water table is not required.

Response 17-16

BLM, through the analysis in the Draft EIS, has concluded that there would be no expected long-term uncontrolled surface water or groundwater contamination. In particular, despite more than 30 years of mining at Genesis-Bluestar, there is no evidence of seepage, leaching, or surface or groundwater contamination at Genesis-Bluestar. The recommendations include a call for appropriate cover. The DEIS in the proposed action explains that a 2 ft cover of Carlin Formation material, stockpiled at Lantern, will be used for reclamation. Given the history of mining at the site and the data in the EIS concludes that there is little or no risk of contaminant release. Bottom liners, leachate capture systems, groundwater capture systems, and water treatment systems are not warranted at this time.

- Waste rock handling alternatives should include appropriate cover to prevent or minimize infiltration of meteoric water into, and contaminant leaching from, both PAG and non-PAG material. Bottom liners and leachate capture systems to preclude, to the extent practicable, the transmission of any contaminants to groundwater or surface water should be evaluated. The evaluation should discuss whether any leachate recovered by this alternative would be treated, discharged, or used in mine operations.

- Groundwater capture systems (e.g., slurry walls, French drains, groundwater wells) should be evaluated. We believe additional hydrological characterization (e.g., geologic structures, flow preferences, etc.) is needed to properly design and determine the effectiveness of a capture system. The additional hydrological characterization would also aid in determining the extent to which the proposed mitigation (underlying limestone and unsaturated zone) would truly be effective.

- Treatment systems (passive and/or active) should be evaluated and targeted for each contaminant of concern.

Recommendation: The development of additional alternatives for the Genesis Project should be accompanied by a process that evaluates those alternatives using state-of-the-art means to determine their effectiveness in addressing various contaminant leaching issues.

- The agencies and Newmont should agree on the selection of appropriate models for predicting water quality at the Genesis Mine and use them to conservatively predict contaminant leaching potential and impacts on various water resource receptors.

- The models should be used to conduct sensitivity analyses based on various alternative actions (e.g. reduction of infiltrate quantity and/or change in leachate chemistry), and determinations should be made of the likelihood of various outcomes, such as exceedance of applicable water quality standards.

- The revised or supplemental DEIS should describe and discuss contingency measures that would be taken should prevention measures fail.

- The revised or supplemental DEIS should include the costs of these prevention, capture, and treatment controls, as well as additional measures likely to be needed over the life of the project and for as long as they would be implemented after mine closure. The document should include the calculated costs of operations and maintenance, facilities replacement, monitoring, and reporting.

Financial Assurance

Financial assurance is not discussed in the DEIS, but is critical to determining whether all commitments for proper closure, reclamation, post-closure care, monitoring, and

Response 17-17
See Response 17-15

17-17

Existing analyses and models have been completed to the best methods available at the time and no issues were found. BLM agrees that the recommendation (involving calculating costs) would be appropriate were such things found to be necessary; however, such cost estimates would not be included in a NEPA document.

contingency measures can be met by the mining company. Because the amount and viability of financial assurance are critical factors in determining the effectiveness of these activities, EPA believes it is necessary to analyze these factors in the EIS to determine the significance of potential impacts and the feasibility of long-term mitigation measures. For example, if appropriate closure, reclamation, post-closure, or follow up contingency measures are significantly underfunded and, therefore, infeasible, contamination of surface water and groundwater may not be controlled. Thorough geochemical analyses of *all* Genesis Mine waste rock, including existing waste rock, will be critical to determining appropriate design, reclamation, closure, post-closure, and mitigation measures and their costs.

EPA believes the adequacy of financial assurance for these activities could make the difference between the Project being sufficiently managed over the long-term by the site operator, or being an unfunded/under-funded contaminated site that becomes a liability, that may need to be addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Furthermore, in the interest of public disclosure and informed decision making regarding any potential financial liabilities, the economic viability of the proposed project, including the cost of long-term controls and/or treatment, should be evaluated before the project is authorized. BLM should require Newmont to provide adequate financial assurance that long-term controls and/or treatment will be implemented when necessary during and after mine closure.

> **Recommendation:** We recommend that the revised or supplemental DEIS identify the estimated bond amounts needed for each closure and reclamation activity for the entire Genesis Mine, including any necessary measures needed to redesign or mitigate problems with existing waste rock disposal facilities. Also, the revised or supplemental DEIS should discuss whether, when, and how BLM can modify the bond during the course of operations if temporary, long-term, or perpetual treatment and/or remediation needs are discovered during operations. Identify who would be responsible for any post-closure cleanup actions should they be necessary.

17-18

Long-term post-closure operations and maintenance may be necessary for the proposed project, especially if existing or proposed facilities are not properly designed. Mining projects have resulted in the expenditure of billions of dollars by the federal government for environmental cleanups. There are many examples of large and well capitalized mining companies going bankrupt before their responsibilities for environmental cleanups could be satisfied. In light of this history, BLM's Surface Management Regulations for Surface Mineral Operations at 43 CFR 3809 authorize BLM to require operators to:

> "... [e]stablish a trust fund or other funding mechanism available to BLM to ensure the continuation of long-term treatment to achieve water quality standards and for other long term, post-mining maintenance requirements. The funding must be adequate to provide for construction, long-term operation, maintenance, or replacement of any treatment facilities and infrastructure, for as long as the treatment and facilities are needed after mine closure. BLM may identify the need for a trust fund or other funding mechanism during plan review or later." [43 CFR 3809.552(c)]

Response 17-18

In accordance with 43CFR3809.401(d), BLM requests a reclamation cost estimate only after processing and modification of the proposed Plan of Operations is substantially completed. BLM recognizes that substantial changes may be made to a proposed Plan of Operation during the NEPA review and analysis process. BLM has concluded that it is impractical to request a reclamation cost estimate at the time of submission of the Plan of Operation. With the NEPA process, because of the demands on the proponent's resources to prepare such an estimate, it is probable that substantive changes in the proposed operations are likely to lead to substantive changes in the reclamation cost estimate. An example for the Genesis Project, is that during the preparation of the Genesis EIS, Newmont proposed to modify the Plan of Operation to add hauling three million cubic yards of Carlin Formation material from the Lantern Mine to the Genesis Project area for reclamation. This change in the proposed plan for the Genesis Project will add several million dollars to the reclamation cost estimate. There may be other substantive changes to the reclamation costs before the NEPA process is completed and a Record of Decision is issued.

To estimate the potential costs that may be required to address long-term post-closure operations and maintenance, a plan should be developed.

> **Recommendation:** If long-term post-closure operations and maintenance will be needed to prevent resource degradation from mine drainage, a long-term, post-closure plan for preventing and/or managing mine drainage should be developed and included in the revised or supplemental DEIS. It should include specific plans for operating, maintaining, and replacing facilities and infrastructure, monitoring, and follow up mitigation over the long term. The plan should also include protocols for surface water and groundwater monitoring, and specify the parameters to be monitored. It should identify and describe follow-up mitigation actions that would be taken should destabilization or contamination be detected, and identify who would be responsible for these actions.

17-19

If long term water quality treatment is needed, a long term trust fund or other funding mechanism should be established pursuant to 43 CFR 3809.552(c) to ensure adequate funding will be available to implement the post-closure plan. The appropriate level of funding, types of financial instruments, and mechanics of the fund are critical to ensuring it will be available when it is needed. If a long-term plan and trust fund are needed, EPA would like to work with BLM to develop appropriate cost estimates and fund criteria. Engaging an independent third party could also be useful for this purpose.

> **Recommendation:** The revised or supplemental DEIS should discuss all requirements BLM would impose on the mine operator to establish a trust fund or other funding mechanism to ensure post-closure care, in accordance with 43 CFR 3809.552(c). The revised or supplemental DEIS should identify the projected long-term engineering and monitoring costs of each activity, as well as the financial assumptions used to estimate the funding level, projected growth rate, and mechanics of a trust fund or other funding mechanism. EPA believes that the financial assurance necessary to fund post-closure activities must be kept current as conditions change at the mine, and BLM should ensure that the form of the financial assurance does not depend on the continued financial health of the mine operator or its parent corporation.

17-20

Cumulative Impacts

The DEIS is vague and incomplete, lacking adequate assessment of cumulative impacts. "Cumulative impact" means "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.7). Because the geochemistry of the existing waste rock piles at the Genesis Mine is not adequately characterized, the cumulative geochemical impacts associated with the proposed Project, as well as overall project closure and post-closure care, are not presented in an accurate context. Thorough geochemical analyses of *all* Genesis Mine waste rock, including existing waste rock, is critical to determining appropriate design, reclamation, closure, post-closure, and mitigation measures, as well as their costs. As another example, cumulative runoff to Rodeo Creek (from the Genesis-Bluestar Mine and other nearby mine facilities) is not

Response 17-19

EPA's comment identifies the desire for the RCE to include costs estimates of monitoring and maintenance. BLM would consider costs for monitoring and maintenance in the RCE calculations as standard procedure. EPA also requests that a long term trust be established for "what if" contingency. The BLM bonding regulations allow for bonding for identified impacts, not for hypothetical situations. BLM does not bond for unanticipated events, such as accidents, failures, or spills, or for worst-case scenarios.

Response 17-20

BLM establishes trust funds where necessary. The Genesis Project is not a candidate for a trust fund, of the nature mentioned, because there are no processing facilities on site and no history of ARD. BLM is prohibited from establishing trust funds for speculative reasons, e.g. the possibility that groundwater may be contaminated if there is no expectation or analysis that groundwater would be contaminated.

described in the DEIS. Furthermore, the DEIS fails to consider the potential environmental impacts that may occur offsite as a result of this project. For instance, although milling and leaching of ore extracted under the proposed Project would occur at offsite locations, the incremental and cumulative impacts of the Project at these offsite facilities are not considered.

Recommendation: The document should clearly describe all potential impacts of the proposed Project when added to the existing project and other actions in the project vicinity. The revised or supplemental DEIS should address entire waste rock dumps, i.e., including previously disposed waste rock, rather than just the balance of waste rock that would be disposed in the dumps under the proposed Project. The mass loading of all sources needs to be determined in order to properly design a successful long-term water management and treatment system. The revised or supplemental DEIS should consider all potential impacts of the Project whether they occur within the designated Project area, or at some offsite location. It should also describe the cumulative impacts to all resources in the cumulative effects study area, including from other past, present, and reasonably foreseeable future actions not necessarily associated with the Genesis-Bluestar Mine.

17-21

Surface Water Quality

The DEIS does not provide sufficient information regarding existing surface water quality in the project area, particularly for Rodeo Creek and Sheep Creek. For example, the DEIS (Section 3.4.3.2) states that five surface water samples from Rodeo Creek are analyzed annually as part of Newmont's Leeville Project Mitigation Plan, and that 2008 samples indicated mercury concentrations below reporting limits. It is unclear why only 2008 samples for mercury in Rodeo Creek are singled out, what the concentrations are for other parameters analyzed over the years, and why this information is not included in the DEIS. BLM may consider this information to be included "by reference;" however, in the interest of public disclosure, we recommend it be included in the body of the EIS along with the reporting limits. In addition, while Table S-1 states that no perennial or ephemeral streams are located within the project footprint, several maps indicate that Sheep Creek has perennial flow in the vicinity of the mine site, but this is not acknowledged nor discussed in the DEIS. In addition, the DEIS does not provide projected surface water quality information for the area under the proposed alternative nor other reasonable alternatives. The revised or supplemental DEIS should include a thorough analysis of existing surface water conditions, as well as any direct, indirect, or cumulative impacts that may result under the proposed Project or other reasonable alternatives.

Recommendation: The revised or supplemental DEIS should include existing water quality values for surface waters in and around the Genesis Mine area, including downstream from the Genesis-Bluestar Mine. The laboratory's analytical minimum level and the test method used should be included for each water quality value. A table would be useful for this purpose. The revised or supplemental DEIS should also project water quality values for these waters under the proposed alternative and other reasonable alternatives. Attention should be given to direct, indirect, and cumulative impacts that may result from Project implementation, including impacts resulting from offsite milling, leaching, etc.

17-22

Response 17-21

There is no expected contaminant load (or run-off) into Rodeo Creek from the Genesis Project – and therefore there is no cumulative impacts issue. With regard to the statement that cumulative impacts of milling and leaching ore offsite should be addressed as incremental and cumulative impacts of the project, BLM agrees with the statement but believes that all related cumulative impacts that need to be analyzed have been addressed. For example, the Draft EIS addresses both the direct and cumulative impacts of mercury emissions as a result of Genesis Project ore that will be processed at the South Operations Area (aka Gold Quarry).

Response 17-22

Mercury in Rodeo Creek is mentioned in the Genesis Project Draft EIS because mercury is currently an issue of public interest. Because of that interest, the Genesis Project Draft EIS includes an analysis of the mercury emissions from Genesis ore as well as the related cumulative impacts.

With regards to Sheep Creek, BLM does not know of any maps that show Sheep Creek as having perennial stretches, although it can be construed from Figure 3-8 in the Draft EIS that Sheep Creek may have a different status than the other non-perennial drainages in the Genesis Project area. That is an error in the graphic. Sheep Creek is not a perennial creek, in any part of the drainage. For this reason, Sheep Creek is not discussed as a perennial flow in the Genesis Project Draft EIS. It may help to know that the main drainage of Sheep Creek is approximately two miles south of the Genesis Project area and there are no expected impacts to Sheep Creek from any past, present or proposed actions in the Genesis Project area.

The reason there is no surface water quality information in the Genesis Project Draft EIS is that there are no perennial water sources in the immediate area and no expected impact to surface water from the Proposed Action. The No Action alternative would result in development of a pit lake in the Genesis Pit, but it is unrelated to other surface water in the general area and would have no impact on other surface water. It is true that there would be surface drainage off the Genesis Project area, especially the Section 36 and Section 5 Waste Rock Disposal Facilities, in the event of a storm of sufficient intensity, or if there was sufficient build up of snow during the winter with frozen ground underneath extending from the mine site miles downstream to Boulder Creek followed by a strong warming trend such that melting snow would flow over the frozen surface rather than percolate into the ground. However, storms of this scale are rather rare events and the frozen ground/melting snow over several miles of drainages downstream is virtually impossible. Even if such things did occur, there is no expected negative impact to surface water as a result of any mining activity. There would be erosion and heavy sediment loading under flooding conditions, as would occur with a rainstorm of sufficient intensity, but this would occur whether or not the mine existed.

The DEIS does not provide adequate detail regarding surface run-*on* diversion channels, including maps, topography, and flow direction. The information and figures provided in the DEIS do not support the conclusion that surface water resources will not be affected by the project.

> **Recommendation:** The revised or supplemental DEIS should include maps and additional discussion that depict and describe the location and flow routes of run-on diversion channels to a greater extent and at multiple scales so that specific design and overall flow patterns can both be discerned.

17-22 (contd)

The DEIS does not provide adequate detail regarding surface stormwater run-*off* diversion channels, including maps, topography, and flow direction, to support the conclusion that surface water resources will not be affected. Specifically, the revised or supplemental EIS should describe flow routes of the stormwater, and whether the flow will be diverted to any perennial stream reaches. In addition, a number of figures, including Figure 2-3 and Figure 2-11, indicate that some surface flows across the site exit the project boundaries. In particular, Figure 2-11 indicates that flow off waste rock disposal facilities 5 and 36 will exit the project boundary to the west in the direction of surface waters referred to as "Unnamed tributaries to Boulder Creek" and that surface flow across the back-filled Beast Pit is expected to exit the project site to the east, in the direction of Rodeo Creek. Despite this, the DEIS does not include a discussion of either projected or potential impacts to these surface waters. Nor does it answer some basic questions essential to establishing the likelihood and severity of potential impacts. For instance, will the project's contribution of pollutants exceed thresholds? Does either stream flow to any waters of the United States? Does water on the site have the potential for underground flow and re-emergence elsewhere?

> **Recommendation:** The revised or supplemental DEIS should include maps and additional discussion that addresses whether any flow across the site has the possibility of interaction with offsite waters and if so, what the potential impacts could be and how flows would be monitored and controlled. The apparent discrepancy between the text of the document and the figures in the document needs to be rectified.

17-22 (contd)

The DEIS does not provide data regarding the expected concentrations of pollutant parameters to be generated from waste rock runoff. Based on information in Appendix B, it appears that waste rock runoff could contain elevated levels of a number of pollutants, including arsenic, antimony, nickel, and selenium.

> **Recommendation:** The revised or supplemental DEIS should thoroughly describe waste rock runoff characterization, as well as the Best Management Practices that will be needed to control stormwater runoff and ensure that water quality standards are met.

17-23

Groundwater Quality and Quantity

The DEIS does not provide adequate information regarding existing and projected groundwater quality in the project area. While the DEIS states that waste rock would not

Response 17-22 (Continued)

BLM believes there is adequate run-on and run-off information in the Draft EIS, particularly since there are no impacts to surface water expected from the Genesis Project. Run-off flow will not be diverted to any perennial stream reaches because there is no surface water (perennial flowing) in or adjacent to the Genesis Project area, even though run-off would exit the project area in the direction of drainages that would eventually drain to perennial flowing streams. The flooding conditions that would be necessary for such conditions to exist (for surface flow from Genesis to reach perennial water) would obliterate any measurable contribution of mine activities through dilution from the large quantities of precipitation that would be required for such to happen as well as from the large contribution that would occur from erosion and mudslides from existing natural landforms that would be affected by the same storm conditions. As a result, there would be no impacts.

There has never been leachate or seepage observed from the facilities at Genesis. In the instance of a large storm and rainfall event (torrential downpours) drainage from Genesis would be unpredictable and that predictions would be of limited value. Consequently, a downpour of such magnitude would dilute any contribution from Genesis to the level of "undetectable." If Genesis had process facilities (e.g. cyanide ponds or similar process contents) on site that would not be the case. Although Genesis ore will go to the North Operations Leach Pad, the leach pad and its prospective ore loading are already permitted and approved by NDEP. There are no predicted impacts to surface water expected from the continued operations or reclamation of the North Operations Area Leach Pad.

Response 17-23

All waste rock placed on the surface of the Waste Rock Disposal Facilities will be Non-PAG. During reclamation, the waste rock disposal facilities will be covered with two feet of Carlin Formation material, a material with an excellent history as a growth medium at the neighboring Barrick Goldstrike facility. There is no expectation of contaminated runoff from the waste rock disposal facilities, in part from the lack of contaminating material at the surface and in part from the very short length of drainages across the waste rock facilities that would provide very little time for dissolution of contaminants – even if they existed.

generate acid drainage, EPA believes the acid-base accounting methods employed and the abbreviated 20 week kinetic test leave a high degree of uncertainty regarding the potential for acid production. For this reason, we also believe that the risk to groundwater resources remains uncertain and potentially significant.

The DEIS does not adequately discuss current and possible future uses of groundwater. The DEIS indicates in Appendix B that "groundwater in the Project Area is not used for drinking," but it also states (p. 3-46) that there are groundwater rights in Boulder Valley, including two rights in the Project area. In addition, the DEIS does not discuss whether the groundwater is a potential Underground Source of Drinking Water (USDW, see Title 40, Code of Federal Regulations (40 CFR) Section 144.3) for *future* users. If the groundwater at the site represents a potential USDW, the increase in trace metal and constituent concentrations anticipated to occur as groundwater levels rebound post-mining would serve to further degrade this drinking water source.

> **Recommendation:** The revised or supplemental DEIS should address current and future uses of the groundwater in the Project area and down gradient and discuss whether the groundwater is a potential USDW for future users. If it does not represent a USDW, the revised or supplemental DEIS should provide the specific information and citations to support that claim. In addition, the revised or supplemental DEIS should identify the nearest private and public water wells to the Project site and describe any potential impacts to those wells.

The DEIS provides concentrations for a number of parameters at wells DS-66 and GEN-39; however, no effort appears to have been made toward providing a comprehensive picture of the existing groundwater quality. While information may be included by reference, EPA believes that a more comprehensive discussion of the background groundwater quality conditions would facilitate understanding of possible groundwater impacts and more adequately fulfill the need for full public disclosure. In addition, no data are provided nor cited for the existing groundwater quality in the perched groundwater table in the Vinini formation; nor is any prediction provided for water quality impacts to this groundwater source.

> **Recommendation:** The revised or supplemental DEIS should include sampling data taken at a number of wells in the project area over a period of multiple years, so as to show any changes or trends that may be occurring to the groundwater quality conditions as a result of existing operations. A table would be appropriate for this. A more comprehensive discussion of existing groundwater conditions at the project site, as well as projected changes in groundwater quality under the proposed action and other alternatives is needed. The revised or supplemental DEIS should also provide information regarding the existing and predicted groundwater conditions in the Vinini formation located on the east of the Project site.

<u>Air Pollutant Emissions</u>

The DEIS does not provide adequate information regarding air pollutant emissions from the Genesis Mine. The DEIS states that the proposed project would result in the emission of a

17-24

Response 17-24

BLM believes that existing analyses are adequate. Further, BLM and the EPA have worked with Newmont to devise an Adaptive Management Plan (AMP) that would provide engineering and environmental controls during the interim period while the HCT are run and management options for the future based on HCT results. See updated AMP in Appendix A of this Final EIS. BLM considered whether or not the Genesis area would be a source of underground drinking water in the future and concluded that such would be highly unlikely. There are no private or public wells or water rights in the Genesis area that are not owned by Newmont. Therefore it was not considered necessary to mention those issues in the Draft EIS.

17-25

Response 17-25

The BLM believes that existing information on groundwater quality is adequate. The water table in the Vinini Formation is not a perched water table but a result of compartmentalization in a rock formation with very low conductivity. There is no prediction for water quality in the Vinini Formation because there is no proposed or existing action other than dewatering and therefore there is no expected change in the water quality. Any changes in groundwater quality will show up in the Boulder Valley Monitoring Plan and Maggie Creek Monitoring Plan reports which are under the primary supervision of the State of Nevada.

number of federally designated criteria pollutants, including sulfur dioxide (SO2), carbon monoxide (CO), oxides of nitrogen (NOx), volatile organic compounds (VOC), and particulate matter (PM). However, the DEIS neither provides specific emissions projections for these pollutants nor discusses how the proposed project may contribute to the cumulative deterioration of air quality in the region. The DEIS also describes the projected mercury emissions that are likely to result from the ore processing at Newmont's South Operations (i.e., Newmont Corp. Gold Quarry facility), but does not provide an adequate description of how the Nevada Mercury Control Program and the EPA's proposed national emissions standards will affect these emissions.

Recommendation: The revised or supplemental DEIS should provide current emissions estimates of all criteria pollutants from the existing mine site, including both PM10 (particulate matter of 10 micrometers or less) and PM2.5 (particulate matter of 2.5 micrometers or less); the projected emissions of all criteria pollutants from the proposed project and alternatives; and a discussion of these emissions in the context of cumulative air impacts.

With regard to mercury emissions, the DEIS should include a more comprehensive discussion of the Nevada Mercury Control Program (NMCP) requirements, especially the Phase 2 permits, and how the NMCP will require mercury controls at this facility. The DEIS should also include a brief description of the proposed national emissions standard for mercury emissions from gold mines, which was published in the Federal Register on April 28, 2010, and how this rule will limit mercury emissions from this facility. The proposed rule is available at: http://www.epa.gov/ttn/oarpg/new.html.

17-26

The DEIS states that no mitigation would be employed for the reduction or remediation of the criteria pollutant emissions. Although the air basin in which the project would occur is unclassified or designated as attainment for all National Ambient Air Quality Standards, numerous technologies exist for the reduction of criteria pollutant emissions. Because the project has the potential to produce large amounts of PM10, EPA recommends that the revised or supplemental DEIS include emissions reduction measures to control fugitive dust emissions at the Genesis Mine.

Recommendation: We recommend the following emissions reduction measures be considered to control fugitive emissions.

- Apply water or other wetting agents to dust-prone locations;
- Revegetate disturbed areas as soon as disturbance activities are completed;
- Use particle traps and other appropriate controls to reduce emissions of diesel particulate matter (DPM) and other air pollutants. Traps control approximately 80 percent of DPM, and specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions;
- Minimize construction-related trips of workers and equipment, including trucks and heavy equipment;
- Lease or buy newer, cleaner equipment (1996 or newer model);

17-27

Response 17-26

The draft EIS does not provide specific emissions projections for the pollutants mentioned because although BLM recognizes that such pollutants will be produced, there is no concern that the quantity or quality of the pollutants, which arise from the trucks and other diesel and gasoline powered vehicles on site, are an issue that needs further study. Additional information has been added to Chapter 2 of this Final EIS. (refer to Chapter 2, Modifications and Corrections to page 3-24, Section 3.4.1.1, paragraph 2 and page 3-26, Section 3.4.1.2, paragraph 3).

BLM has completed additional air quality studies, including modeling for $PM_{2.5}$ and concluded that $PM_{2.5}$ is not an issue of concern. Additional information has been included in Chapter 2 – Modifications and Corrections in this Final EIS. The existing and prospective emissions for mercury from Genesis and from cumulative sources were determined to not be an issue of concern in the Draft EIS. In addition, BLM, as a response to comments on the Draft EIS about fugitive mercury, looked at the issue of fugitive mercury from such sources as Waste Rock Disposal Facilities and other non-point mercury sources in light of the recent University of Nevada, Reno study on mercury emissions at Twin Creeks and Cortez Pipeline (see Response 14-9 and Chapter 2 – Modifications and Corrections). BLM concluded that the fugitive dust issue did not require further study and was not an issue of concern (refer to Draft EIS, pages 3-26 to 3-27, pages 3-31 to 3-32 and Figures 3-5 and 3-6).

Response 17-27

BLM has followed existing policy and will continue to do so.

- Employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times and does not unnecessarily idle, is tuned to manufacturer's specifications, and is not modified to increase horsepower, except in accordance with established specifications.

Monitoring and Mitigation

The DEIS does not adequately discuss monitoring and mitigation for surface water, groundwater, or air emissions. It appears that there are no mine-specific monitoring or mitigation plans for the Genesis Mine. The DEIS indicates that monitoring will take place in accordance with a number of existing monitoring plans, such as the Maggie Creek Basin Monitoring Plan, but these plans are not included in the DEIS and no additional details are provided. The DEIS does not demonstrate that the Maggie Creek Basin Monitoring Plan or any other monitoring plans mentioned will address all potential impacts that might result from the Genesis project. Nor does it indicate action thresholds or contingency measures that would apply in the event monitoring indicates that action thresholds are exceeded.

Recommendation: The revised or supplemental DEIS should include a mine-specific groundwater and surface water monitoring and mitigation plan specific to the Genesis Mine. The plan should identify and describe all monitoring that will occur during mine operations and post-closure, as well as specify action thresholds and specific follow up measures to be taken if groundwater monitoring indicates actual impacts (e.g., contaminant concentrations) are greater than the predicted impacts summarized in the DEIS. The revised or supplemental DEIS should also discuss mine-specific air emissions monitoring, action thresholds, and mitigation measures to reduce emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases.

Greenhouse Gases

The DEIS should include a discussion of the potential impacts of climate change on the project. In addition to considering mitigation measures for greenhouse gases (GHGs), EPA recommends that the discussion of GHGs in the DEIS include a brief, qualitative summary of the potential impacts of climate change at a regional, U.S., and global scale, based upon U.S. Global Change Research Program and IPCC summaries. We also recommend that BLM translate the proposal's estimated GHGs into an easily-understood equivalency, such as the number of passenger vehicles annually emitting an equivalent amount of GHGs. See, e.g., http://www.epa.gov/cleanenergy/energy-resources/calculator.html Finally, we recommend that BLM update the discussion of EPA's GHG-related regulatory activity under the Clean Air Act at p. 3-31 of the DEIS.

17-28

Response 17-28

BLM believes that existing monitoring plans, all levied by the State of Nevada as a function of its regulatory authority, are adequate for the issues involved. BLM notes that mining in the Genesis-Bluestar area has continued since at least 1974 under regulations of the State of Nevada and no environmental degradation has occurred that has not been addressed. The only two issues of environmental problems that BLM is aware of occurred on private land: 1) the deaths of birds due to cyanide ponds which was resolved by protection measures and 2) seepage from a tailings pond adjacent to Genesis-Bluestar which is being addressed by the Nevada Division of Environmental Protection in cooperation with Newmont. Appropriate monitoring and mitigation plans will be established if warranted.

17-29

Response 17-29

BLM discusses climate change on pages 3-24 and 3-25 of the Draft EIS. However, we will consider adding such to future Environmental Impact Statements. The EPA's GHG-related regulatory activity is believed not relevant to the Proposed Action. Further, if there are regulatory changes that affect these issues, the changes will not be within the implementation authority of the BLM.

CHAPTER 4

REFERENCES

The following references are for information and data cited in this abbreviated Final EIS.

AMEC Earth & Environmental. 2010. Technical Memorandum from S. Ochs (AMEC Earth & Environmental) to T. Grotbo (AMEC Geomatrix) concerning Emissions from Haul Trucks and Roadways. September 9, 2010.

Colorado State University. 2004. Interagency Monitoring of Protected Visual Environment (IMPROVE) data. Website located at: http://vista.cira.colostate.edu/DatawareHouse/IMPROVE/Data/AEROSOL/Help/IMPROVELocTable.txt

Eckley, C., Gustin, M., Miller, M., and Marsik, F. 2009. Fugitive Mercury Emissions from Nevada, USA Gold Mines. University of Nevada-Reno and University of Michigan. Post-doctoral research paper that has not been peer reviewed. November.

Environmental Management Associates, Inc (EMA). 2007. South Operations Area and Leeville Mine Cumulative Air Quality Impact Assessment Report No. 2009-01. Prepared for: Newmont Mining Corporation. Carlin, Nevada. July.

_____**2010a.** Cumulative Air Quality Impact Assessment – Supplemental $PM_{2.5}$ Assessment. Letter report to M. Burt, Environmental Coordinator, Newmont Mining Corporation. July 19, 2010.

_____**2010b**. Technical Memorandum: Modeled NO_2 Emissions for Genesis Project. September 10, 2010.

Eureka County. 2010. Eureka County Master Plan. Eureka County Commission. Eureka, Nevada.

Great Basin Ecology, Inc. (GBE). 2009. Final Carlin Trend Mule Deer Migration Corridor Survey Report.

iml Air Science. 1996. Facsimile from Mark Weitz (iml Air Science) to Todd White (Newmont) containing $PM_{2.5}$ data. September 4, 1996.

Lechler, P., Miller, J., Hsu, L-C, and M. Desilets. 1996. Mercury mobility at the Carson River Superfund Site, west-central Nevada, USA: Interpretation of mercury speciation data in mill tailings, soils, and sediments.

Nevada Department of Wildlife (NDOW). 2010. Area 6 Mule Deer Working Group Habitat Management Plan.

Newmont Mining Corporation. 1992. Mercury content in waste rock at Genesis Project. Unpublished spreadsheet data files provided to AMEC Geomatrix by M. Burt, Environmental Coordinator, Newmont Mining Corporation via electronic mail on August 23, 2010.

National Oceanic and Atmospheric Administration (NOAA). 1997. Western Region Technical Attachment No. 97-31; Recent Trends Associated with Spot Forecast Requests in Nevada. September 9, 1997.

University of California – Davis. 1995. Interagency Monitoring of Protected Visual Environment (IMPROVE) Data Guide. A Guide to Interpret Data. August.

APPENDIX A
ADAPTIVE MANAGEMENT PLAN FOR WASTE ROCK

ADAPTIVE MANAGEMENT PLAN
FOR
WASTE ROCK
GENESIS PROJECT

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February 24, 2011

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND 1
2.0 OBJECTIVES 2
3.0 CONSULTATION 3
4.0 WASTE ROCK MANAGEMENT PLAN 3
4.1 GENESIS-BLUESTAR OPERATIONS AREA – EXISTING REFRACTORY ORE STOCKPILE AND WASTE ROCK DUMP DESIGN, CONSTRUCTION, AND MONITORING PLAN (NEWMONT 2003) 4
4.2 GENESIS MINE – WASTE ROCK MANAGEMENT PLAN 4
4.2.1 Monitoring Program 6
4.2.2 Data Management and Reporting 8
5.0 ADAPTIVE MANAGEMENT PLAN 8
5.2 SUPPLEMENTAL WASTE ROCK CHARACTERIZATION (SWRC) STUDIES 9
5.2.1 SWRC Design 10
5.2.2 Kinetic Test Decision Criteria 11
5.3 ADAPTIVE WASTE ROCK MANAGEMENT 12
5.3.1 Current PAG Management 13
5.3.2 Adaptive Management Action No.1 13
5.3.3 Adaptive Management Action No. 2 16
6.0 WASTE ROCK MANAGEMENT MONITORING PROGRAM REVIEW 16
7.0 PERFORMANCE REVIEW 16
8.0 REFERENCES 16

LIST OF TABLES

Table 1 PAG Cell and Encapsulation Material
Table 2 PAG Waste Rock and Encapsulation Material

LIST OF FIGURES

Figure 1 Typical PAG Cell Cross Section
Figure 2 PAG Cell Locations

1.0 INTRODUCTION AND BACKGROUND

Newmont Mining Corporation (Newmont) and the Bureau of Land Management (BLM) developed this Adaptive Management Plan (AMP) to verify predicted waste rock behavior associated with development of the proposed Genesis Project. The AMP identifies ongoing waste rock characterization work associated with current mining operations, future waste rock monitoring associated with the proposed project, and management actions that could be employed to manage potentially acid generating (PAG) waste rock should supplemental testing indicate an increased volume of PAG above the volume included in current mine plan designs.

The Genesis Project consists of expansion of existing mining operations associated with the Genesis-Bluestar Operations Area which has been in operation since the 1970s. Expansion of operations would include increasing the size of the existing Genesis Pit, development of the Bluestar Ridge Pit, complete backfilling of two existing mine pits, partial backfill of the Genesis Pit, and vertical expansion of two existing external waste rock disposal facilities. Total new disturbance would be 43 acres.

Supplemental rock characterization and confirmation testing associated with this AMP is scheduled to be completed within the first year of the Genesis Project. Should results of the testing indicate implementation of a revised PAG management method, Newmont would review PAG waste rock management with BLM and NDEP. Assuming that the engineered response for management of additional PAG waste rock can be implemented within the footprint of previously approved and existing facilities at the Genesis-Bluestar Operations Area, Newmont would proceed with the necessary construction and revised or modified PAG waste rock management program. Modification to the approved waste rock management plan would require approval by NDEP and BLM and would require adjustment to bonding levels to accommodate the revised management plan.

Specific components of the Waste Rock Management Plan (WRMP) are summarized in this document. The WRMP would be conducted concurrently with the AMP and would be continued and modified as necessary throughout the life of the mine. Waste rock monitoring protocols and reporting requirements associated with the WRMP would be implemented from initiation of mining.

As part of this AMP, supplemental static acid-base accounting tests including Nevada modified Sobek and net carbonate value (NCV) (ASTM E1915) and kinetic humidity cell tests will be initiated to augment previous tests completed by Newmont used in design of the Genesis Project and confirm operational PAG waste rock identification criteria.

Previous geochemistry studies conducted for the Genesis Project included twenty (20) humidity cell tests selected from 34 composite samples (Geomega 2008). These 34 samples were composited from 533 individual samples, taken from 81 boreholes, representing ~95% of all combinations of lithology/alteration and net carbonate value (NCV) to be mined in the Genesis area.

Samples used for humidity cell tests were selected based on static test results (i.e., meteoric water mobility procedure (MWMP), biological acid producing potential (BAPP), peroxide acid generation, SVL modified Sobek and NCV testing) which identified the samples that are "uncertain" in terms of their ability to generate acid. These 20 humidity cells were selected to be representative of 440.5 million tons (Mt) of waste rock to be mined during the Genesis, West Genesis Phase I, and II.

Newmont's Plan of Operations (POO) for the Genesis Project identifies approximately 449.5Mt of waste rock to be mined during the life of the project. Results of waste rock characterization representative of 440.5Mt as indicated above are also representative of the projected 449.5Mt. The discrepancy is the result of the specific pit design that was used during initiation of the geochemistry study and subsequent refinements to the pit configuration now included in the Genesis Project POO (Newmont 2007).

Historical interpretation of the oxide siliceous (OS) and oxidized carbonate decalcified (OCD) waste rock using NCV methods concluded that mixed results for acid generation potential were noted for some material with a NCV range between 0.0 and 0.26 $\%CO_2$ (0 to 5.9 tons of $CaCO_3$ per kiloton of rock – abbreviated as T/kT $CaCO_3$). Samples with a NCV of 0.26 $\%CO_2$ (5.9 T/kT $CaCO_3$) or greater were classified as Non-Potentially Acid Generating (Non-PAG). NCV less than 0.0 $\%CO_2$ (0 T/kT $CaCO_3$) were classified as PAG. These values were derived from the existing HCT results. The maximum amount of waste rock that could require management as PAG would be approximately 128Mt (about 28 percent of the total waste rock produced during the Genesis Project) based on an NCV of less than 0.26% CO_2. Further testing as outlined in the Supplemental Waste Rock Characterization (SWRC) will emphasize Nevada modified Sobek to delineate uncertain waste material and allow comparison to previous analyzed material.

Supplemental humidity cell tests will focus on the range of results where previous geochemistry studies had indicated potential for acidity in some samples (i.e., 0.0 to 0.26 $\%CO_2$ or 0 to 5.9 T/kT $CaCO_3$). Selected samples representing a range of 0.26 to 0.88 $\%CO_2$ (5.9 to 20 T/kT $CaCO_3$) will be included in the humidity cell testing to confirm the long-term net neutralizing potential observed in previous kinetic testing. Sample splits of all samples will be analyzed using Nevada modified Sobek for comparison with the NCV data.

2.0 OBJECTIVES

The objective of this AMP is to accomplish the following goals:

- Complete supplemental waste rock characterization (SWRC) studies to verify and augment previous geochemistry study results concerning classification of waste rock associated with the Genesis Project and, as necessary, revise or modify the Waste Rock Management Plan.
- Implement modified waste rock management action plan (if necessary) with the appropriate engineering controls to prevent unnecessary or undue degradation of the environment and meet water quality standards.
- Revise or modify Newmont's field classification and laboratory program for waste rock to address results of the SWRC studies,
- Establish a monitoring program to be used during life of mine operations of the Genesis Project by which change in waste rock classification, as determined by subsequent testing, will be identified and the operation modified to address those changes as necessary.

The preferred management action for PAG waste rock associated with the Genesis Project is to maximize encapsulation of PAG as backfill in mined-out pits and in existing external waste rock disposal facilities (WRDF) over the life of the operation. The primary reason for this preference is to take advantage of the mine site characteristics; specifically the presence of mined-out pits in the Genesis-

Bluestar Operations Area that can be backfilled with waste rock generated from expansion of the Genesis Pit and development of the Bluestar Ridge Pit. Placement of PAG as backfill in mined-out pits would occur above the predicted groundwater rebound elevation of 5250 feet amsl and would be placed on mine benches with a buffering capacity of 3:1 or greater or would be encapsulated with a ten foot base of limestone with a buffering capacity of 3:1 or greater.

3.0 CONSULTATION

As indicated previously, this Adaptive Management Plan for Waste Rock Management for the Genesis Project was developed by Newmont in cooperation with the BLM. Since the Nevada Division of Environmental Protection is the regulatory authority for surface water and ground water within the state of Nevada and permits activities such as the construction of Waste Rock Disposal Facilities under its Water Pollution Control Permit authority, the BLM endeavors to work with NDEP throughout the implementation of this Adaptive Management Plan including providing copies of all related proposed documents and proposed actions to NDEP for review and comment should NDEP desire to do so.

BLM is the surface management agency for public land included within the proposed Genesis Project area. BLM's regulations require that mining be conducted in a manner that does not cause "unnecessary or undue degradation". BLM regulations at 43 CFR 3809.401 requires that the operator submit and BLM review preliminary or conceptual designs, cross sections, and operating plans for mining areas, processing facilities, and waste rock and tailing disposal facilities [43 CFR 3809.401 (b)(2)(ii)], rock characterization and handling plans [43 CFR 3809.401 (b)(2)(iv)], and monitoring plans [43 CFR 3809.401 (b) (4)].

Newmont, the Genesis Project proponent, has developed a waste rock characterization data base that has been used to design a Waste Rock Management Plan (WRMP) to address the volume of PAG waste rock to be generated as a result of the project (see WRMP in **Section 4** below). The WRMP has been submitted to NDEP as part of Newmont's Water Pollution Control Permit renewal application for the North Area Leach Facility. The WRMP has also been summarized in the Plan of Operations (POO) submitted to BLM in conformance to BLM regulations.

4.0 WASTE ROCK MANAGEMENT PLAN

As described under Section 1.0 above, the amount of PAG that would be managed during the life of the mine is 28Mt. For purposes of this AMP, waste rock management for the Genesis Project would follow the Genesis Project WRMP (Newmont 2009) during the interim period as summarized in this Section. The interim period is the time period between receipt of permits and/or authorizations for the Genesis Project and completion of the Supplemental Waste Rock Characterization (SWRC) Studies described below. The planned schedule for completion of supplemental studies is within one year of Newmont receiving the necessary permits and authorizations for the Genesis Project.

Waste rock management for the Genesis Project will follow the plan of operations (POO) and record of decision (ROD) for the Genesis Project once approved. As stated previously, BLM and NDEP will review the project bonding levels to ensure adequate bond is posted to address management of PAG waste rock material at any time during the life of the Genesis Mine.

4.1 GENESIS-BLUESTAR OPERATIONS AREA – EXISTING REFRACTORY ORE STOCKPILE AND WASTE ROCK DUMP DESIGN, CONSTRUCTION, AND MONITORING PLAN (NEWMONT 2003)

Past waste rock disposal associated with the Genesis-Bluestar Operations Area has been conducted in accordance with Newmont's Refractory Ore Stockpile and Waste Rock Dump Design, Construction, and Monitoring Plan (Newmont 1995). This plan describes waste rock classification, disposal facility construction and site preparation, waste rock disposal, PAG encapsulation methods, reclamation/closure methods, and monitoring and reporting. Waste rock disposal at Genesis-Bluestar Operations has occurred under various plans that have been updated over the years. Waste rock management under the current plan (Newmont 2003) differs from previous plans in the following areas:

- Determination of PAG rock by sampling rock from exploration boreholes and analyzing for NCV, BAPP, XRD/XRF, and MWMP;
- Waste rock dump construction protocols including low-permeability base construction, lined seepage collection ponds;
- PAG waste rock encapsulation cell design and construction, placement of a 10-foot thick Encapsulation Material layer (Non-PAG waste rock with an ANP/AGP ratio of at least 3:1) on the bottom, top, and sides of each PAG waste rock cell;
- Placement of an engineered cap;
- Waste rock dump inspections conducted on a quarterly basis to detect possible abnormal conditions. Quarterly monitoring includes fluids and solids that may accumulate;
- Monitoring of waste rock includes preparation of weight-averaged composites on a biannual basis which are analyzed using the MWMP and acid-generation/acid neutralization potential tests. Results of tests are included in quarterly reports for the facility.

Current permitted Waste Rock Disposal Facilities (WRDFs) associated with the Genesis-Bluestar Operations Area include the Section 5 and Section 36 WRDFs. Both of these WRDFs have been authorized to encapsulate PAG waste rock generated during current operations. Any new facility constructed or existing facility expanded laterally beyond the pre-2003 footprint would be reviewed and analyzed by BLM as an amended POO.

4.2 GENESIS MINE – WASTE ROCK MANAGEMENT PLAN

Newmont has prepared and submitted a WRMP for the Genesis Project. A summary of the WRMP is included in this section with a description of the types of waste rock disposal facilities that would be expanded and/or new facilities constructed; design of PAG waste rock encapsulation cells within the facilities; waste rock monitoring program during mining operations; and the reporting program. The detailed plan is available through BLM or NDEP. Encapsulation cells that have been designed for the Genesis Project provide for a total capacity of 31Mt; predicted tonnage of PAG waste rock to be produced during the Genesis Project is 28Mt (Newmont 2007).

Newmont proposes to use existing mined-out pits (i.e., Beast and Bluestar pits) located within the Genesis-Bluestar Operations Area for placement of waste rock generated during development of the Genesis Project. Backfill operations would also include partial backfill of the Genesis Pit during the life of the operation. In addition, Newmont would use two existing external waste rock disposal facilities (Section 5 and Section 36 WRDFs) for waste rock disposal associated with the proposed expansion. Waste rock placement in these facilities would result in increasing the vertical height of the disposal facilities and increase the amount of PAG that would be placed in each of these WRDFs.

PAG waste rock would be managed by encapsulation in backfilled pits and in the existing external WRDFs. Current design includes construction of seven PAG waste rock encapsulation cells (five cells in backfilled pits and two cells in existing external waste rock disposal facilities). Non-PAG rock would be placed in the bottom of the Genesis Pit to a level above the projected elevation of the pre-dewatering water table. The Beast and Bluestar pit bottoms are above the projected elevation of the pre-dewatering water table. PAG waste rock would be placed in select locations above the recovered water table elevation and would be placed on either limestone benches of the mine pit and/or on Non-PAG backfill. Encapsulation Material (waste rock with an ANP:AGP ratio of at least 3:1) would be placed on the bottom, above, and on the sides of each PAG waste rock cell to a minimum thickness of 10-feet to complete the encapsulation design.

In circumstances where PAG waste rock would be placed directly on limestone benches within mined-out pits, Newmont would drill, blast, dozer rip, and grade to slope the surface of the limestone prior to placement of PAG waste rock (**Figure 1**). Similar to placement of Encapsulation Material under the compacted PAG waste rock described above, this treatment of the limestone bench is designed to promote drainage of meteoric water around the PAG material and limit contact of meteoric water with PAG waste rock. No PAG rock would be placed below the predicted rebound water level of 5250 feet amsl.

The PAG waste rock would be compacted using random wheel compaction techniques on each lift of PAG waste rock as it is placed in the cell. Compaction of the PAG waste rock would decrease the permeability of the PAG in contrast to the Encapsulation Material that would surround the PAG waste rock. In addition to its acid buffering characteristics, Encapsulation Material would function as a drainage layer surrounding the compacted PAG waste rock; directing meteoric water around the compacted PAG waste rock. The drainage function of the Encapsulation Material would limit contact of meteoric water with PAG waste rock thereby reducing the potential for acidic leachate to form.

Vertical expansion of the existing external WRDFs includes construction of PAG waste rock encapsulation cells within Non-PAG waste rock. PAG waste rock would be encapsulated with a minimum 10-foot thick layer of Encapsulation Material (material with an ANP:AGP ratio of at least 3:1) surrounding the sides and top of the cell. Random wheel compaction of the PAG waste rock and sloping of all surfaces (i.e., Encapsulation Material placed under, on top of, and on the sides of the PAG waste rock) would be completed as described previously.

All surfaces of the backfilled pits and external WRDFs would receive a minimum of two-feet of growth media as described in the WRMP approved by NDEP to support establishment of vegetation.

In summary, PAG waste rock encapsulation design is intended to minimize potential for acid drainage by control of the acid generation process which occurs if sulfide minerals such as pyrite react with oxygen and water to form sulfuric acid, which may liberate and mobilize heavy metals. The procedure for controlling acid generation from PAG waste rock is depicted in **Figure 1** and includes:

1. Segregation and placement of PAG waste rock on limestone benches during backfill within the Beast and Bluestar Pit(s), partial backfill of the Genesis Pit, and existing external WRDFs (Section 5 and Section 36). Limestone benches, with an ANP:AGP ratio of at least 3:1, would be drilled, blasted, dozer ripped, and sloped prior to placement of PAG waste rock material. Bottoms of the Beast and Bluestar pits are above the projected elevation of the recovered groundwater table. The bottom of the Genesis Pit is below the elevation of the recovered water table.
2. Total enclosure or encapsulation of the PAG waste rock zone with a minimum 10-foot thick layer of Encapsulation Material (Non-PAG material with an ANP:AGP ratio of at least 3:1).
3. Proper grading and random wheel compaction of individual lift surfaces of PAG waste rock to reduce the permeability of the material.
4. Control and diversion of surface water flow (run-on) to prevent infiltration into WRDFs and backfill pits.
5. Reclamation of the entire surface of the WRDFs, including placement of a minimum two (2) foot thick growth media cover as described in the WRMP and approved by NDEP and establishing vegetation to maximize evapotranspiration.

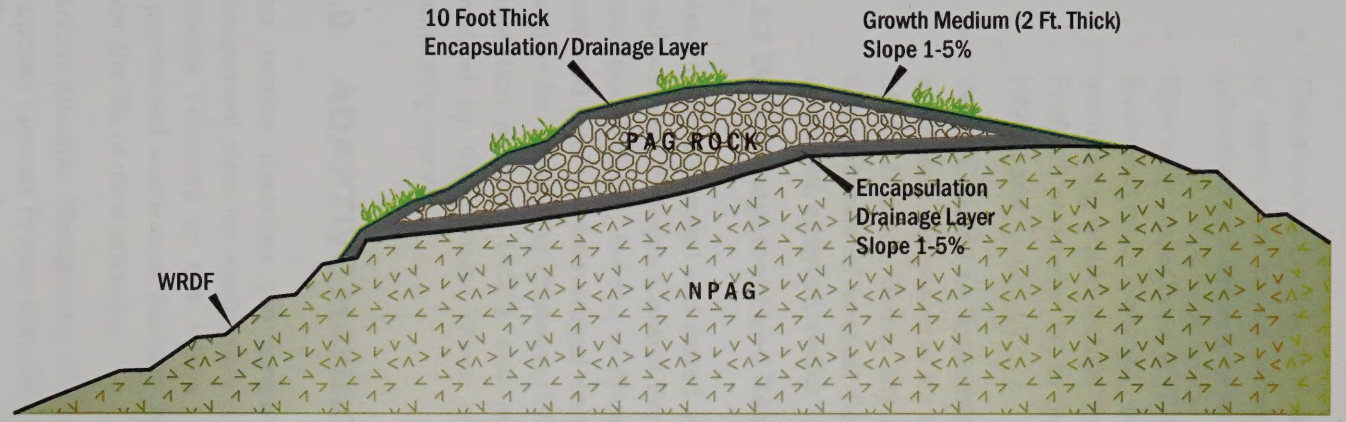
In general, these procedures are based on the strategy that acid generation can best be prevented by minimizing the amount of water which contacts PAG waste rock. PAG waste rock encapsulation cells are designed and constructed to limit exposure of PAG material to atmospheric oxygen, groundwater, direct precipitation, snow melt and storm water run-on.

4.2.1 Monitoring Program

PAG waste rock is segregated from other rock types based on the results of blast-hole kriging and geologic mapping. This segregation ensures PAG waste rock is not mixed with other rock and is properly routed to PAG waste rock encapsulation cells located in the external WRDFs and within the Beast, Bluestar, and Genesis pit(s).

Visual sulfide classification of waste rock is also conducted by Newmont geologists from in-pit samples or blast hole drill cuttings. This visual classification scheme is verified by laboratory analysis of blast hole cuttings. Proper routing to the appropriate WRDFs and pit backfill areas is determined through NCV values for the waste rock.

The PAG waste rock identification criteria were developed from core/drill cutting logs and analyses from exploration holes including mineralogy, SVL modified Sobek, NCV, Peroxide Acid Generation, Biological Acid Production Potential (BAPP), humidity cell kinetic tests, and Meteoric Water Mobility test work. Because earlier geochemical operational characterization was reported as NCV (%CO_2), NCV results from exploratory core samples were entered into the geologic block model. The block model is used to identify and estimate the mass of PAG waste rock material and to locate areas of concern within the pit expansion area. In support of the PAG waste rock characterization tests above, long-term field oxidation tests were conducted at the project site but terminated in May 2010.



TYPICAL EXTERNAL WRDF PAG CELL CROSS SECTION

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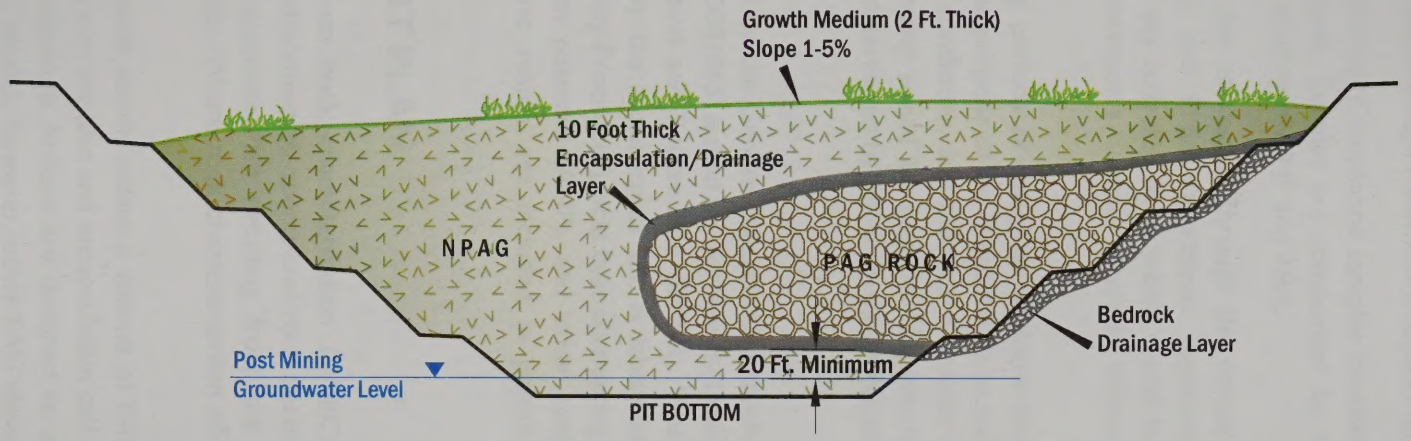

TYPICAL PIT BACKFILL WRDF PAG CELL CROSS SECTION

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AMEC Geomatrix

Typical PAG Cell Cross Section
Adaptive Management Plan
Genesis Project
Eureka County, Nevada
FIGURE 1

Operational characterization procedures are as follows:

- Blast hole analyses, including NCV analysis and visual geology;
- Engineers and Geologists establish polygons for mining and special handling of the waste rock to PAG encapsulation cells (polygons are located in the field by field survey/flagging);
- Track and record PAG waste rock handling through Newmont's dispatch system;
- Compliance sampling, analyses and reporting. Compliance samples consisting of 5kg/200K tons of waste rock mined would be collected. Samples are composited by WRDF type and are submitted to a laboratory for analysis including MWMP and ABA.
- Quarterly inspections of the WRDFs are conducted through the mutual effort of Newmont Environmental, Geology, Engineering, and Mine Operations departments. The quarterly monitoring would include sampling of any collected fluids which would be analyzed for NDEP Profile II parameter list as dissolved constituents. Samples would be filtered and preserved with HNO_3; and
- WRDFs would be inspected following periods of heavy spring snow melt or a precipitation event with the potential for run-off. The purpose of the inspection is to monitor the functioning of the facilities, detect any abnormal conditions, and evaluate the need for remedial actions. Observations of unusual flow or ponding would be reported to ensure that solutions are, contained, analyzed, and/or treated as determined by NDEP and BLM remediation requirements.

4.2.2 Data Management and Reporting

Waste rock is sampled and tested as required by the Genesis-Bluestar Operations Area / North Area Leach - Water Pollution Control Permit (NEV0087065) issued by the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation (BMRR). Waste rock samples are combined into weight-averaged composites by the metallurgical lab. A laboratory analyzes the bulk samples for leachability (Meteoric Water Mobility Procedure), acid base accounting (ABA) including acid generation potential (AGP), acid neutralization potential (ANP), and other analytical parameters as required by the permit. Waste rock analyses results are included in permit-mandated quarterly monitoring reports.

5.0 ADAPTIVE MANAGEMENT PLAN

This section describes the supplemental waste rock characterization (SWRC) program; adaptive management plans for waste rock; possible modifications to operational rock classification methods; and possible revisions to the Waste Rock Management Plan resulting from the conclusions of the supplemental waste rock characterization studies. Waste rock characterization efforts will be on-going over the life of mine activities.

Various plausible Management Actions that would accommodate a volume of PAG waste rock at the proposed Genesis Project that differs from the current plan and encapsulation cell capacity (see Section 4.2) are described in this section. These Management Actions are designed to address various PAG volume scenarios that could result from SWRC studies; however, other PAG management schemes can arise during the mine life as a function of when PAG rock is encountered in each pit, the volume of PAG that is encountered at specific locations within the mine sequence, and the timing and availability of

encapsulation cell capacity within mined-out pits and external WRDFs. These aspects of the mine development can affect the need for modification of PAG management plans during the life of the operation. It is not possible to identify the myriad scenarios that could occur in relation to these mine development aspects; however, the intent of the PAG waste rock management plan is to meet or exceed the encapsulation cell performance ascribed to the proposed design.

5.1 INTERIM WASTE ROCK MANAGEMENT PLAN

BLM and NDEP would revise the reclamation bond to address implementation of the Interim Waste Rock Management Plan. The bond amount would cover placement of a ten foot thick base layer of acid neutralizing (3:1 or greater) material above all interim material placed in the pit as backfill and would ensure that PAG waste rock is properly managed in accordance with the approved plan. This bond amount would provide for covering 50 acres, the maximum that would be left uncovered at any time, with ten feet of encapsulation material.

Implementation of the Adaptive Management Plan would be ongoing at issuance of the Record of Decision for the Genesis Project. Results from the SWRC program may require several months up to a year to complete. To eliminate the potential for rehandling any portion of the 20Mt of waste rock backfilled in the Beast Pit in the first year, the entire 20Mt of waste rock would be encapsulated and managed as PAG until supplemental testing is completed. Waste rock produced after SWRC test results have been confirmed would be managed as determined by the testing results.

Total waste rock tonnage to be placed as backfill into the Beast Pit during the first few years of mining under the current Genesis Project POO is 95.4Mt (91.6Mt Non-PAG and 3.8Mt PAG). Production of waste rock in the first year of mining would be approximately 20Mt (21 percent of the total amount to be placed as backfill in the Beast Pit). The pit walls and bottom of the Beast Pit in the portion of the pit that could contain 20Mt of PAG waste rock is comprised of Roberts Mountain Formation limestone **(Figure 1)**. Newmont would ensure that the ANP:AGP ratio of the Beast Pit benches and pit wall materials on which the first 20Mt of waste rock would be placed is at least 3:1 or that a 10-foot thick layer of Encapsulation Material is placed where pit bench and wall rock does not meet the 3:1 criteria.

Should all rock placed as backfill in the Beast Pit during the first year of mining be reclassified as PAG as a result of the SWRC study, no change in management of PAG placed in the Beast Pit would be required. All waste rock placed during the first year of mining in the Beast Pit would be located on a ten foot thick base layer of acid neutralizing (3:1, or greater) material. Irrespective of the classification of the waste rock, placement of waste rock on limestone benches that have been prepared in accordance with those practices described in Section 4.0 would result in creating preferential flow paths for draining meteoric water and limiting or reducing contact with compacted PAG waste rock. As detailed in Section 4.0, pit bench preparation would include drilling, blasting, dozer ripping, and sloping blasted limestone rock to form the drainage layer underneath compacted PAG waste rock.

5.2 SUPPLEMENTAL WASTE ROCK CHARACTERIZATION (SWRC) STUDIES

The supplemental waste rock characterization (SWRC) study would build upon previous waste rock investigations and laboratory work to revisit and check prior results. The focus of the SWRC program is on those lithologies and alteration products that provided test results that were subject to differing professional interpretations. Completion of supplemental kinetic tests on these materials is intended to

resolve those differing interpretations. The supplemental tests would provide additional evidence for operational methods for classifying waste rock as either acid generating or non-acid generating waste rock. For purposes of this discussion, the term "PAG" will be used in its context as waste rock management to define the amount of acid-generating waste rock that would be determined through the SWRC study.

5.2.1 SWRC Design

The study is comprised of the following procedures and protocols:

- The existing NCV block model will be used to initially target oxide siliceous (OS) and oxidized carbonate decalcified (OCD) rock with NCV values ranging from 0.0 to 0.88 $\%CO_2$ (0 to 20 T/kT $CaCO_3$). Approximately 100 samples (to be combined into approximately 25 composites) will be collected and analyzed by Nevada modified Sobek and NCV methods to confirm the "uncertain" categorization and provide a sufficient sample set for selecting at least 25 humidity cell tests. Humidity cell tests will examine the range of NCV values from 0.0 to 0.88 $\%CO_2$ (0 to 20 T/kT $CaCO_3$) but focus on 0.0 to 0.26 $\%CO_2$ (0 to 5.9 T/kT $CaCO_3$) where previous geochemistry studies had indicated potential for acidity in some samples. The final distribution for the humidity cell tests identified below will be reviewed by BLM and other participating entities.

- At least 25 samples will be composited from five foot intervals containing a single lithology;
- Of those samples, at least 7 will be OS rock and at least 8 will be OCD rock. These samples will be identified through review of the NCV block model. Sample locations will be selected in consultation with BLM, NDEP, and Newmont representatives;
- The samples will be analyzed using Nevada modified Sobek and NCV methods;
- If it is found that there is not a strong correlation between the Nevada modified Sobek and NCV results, the sample selection will be reviewed to determine if additional samples would be necessary to fill in gaps in the suite of samples caused by the lack of strong correlation.
- Based on results of the static testing, at least 25 samples will be submitted for kinetic testing. Kinetic testing will be conducted in accordance with ASTM standard procedure (D5744-96), and BLM IM-NV-2010-014 and as discussed by EPA Technical Document Acid Rock Drainage Prediction (1994). Of the 25 or more samples, at least 22 will be run to completion as determined by a consensus of the participating entities. Reports will be submitted for all tests in progress,
- Selected samples will be submitted to a certified laboratory for conducting the humidity cell tests;
- Splits of the kinetic test samples will be archived for future mineralogy analysis, if needed to support interpretation of the humidity cell test results;
- Humidity cell leachate would be collected and analyzed weekly according to ASTM Standard (D5744-07). Samples collected weekly would be analyzed for redox potential, pH, alkalinity/acidity, conductivity, iron, and sulfate.

- Week 0 and subsequent weekly extracts would be submitted to a Nevada certified analytical laboratory for analysis of NDEP Profile I constituents minus WAD cyanide. Humidity cell leachate will be analyzed weekly, at a minimum, for the following parameters: pH, Eh, conductivity, sulfate, alkalinity/acidity, and iron (total, ferric, and ferrous). Additional Profile I/II analysis, as individual weeks or weekly composites, based upon data objectives, will be evaluated on a case-by-case basis.

- Percent pyrite sulfur will be determined by the Nevada modified Sobek and NCV methods. This value will be converted to the mass of iron and sulfate that could be generated if 100 percent of the pyritic sulfur is oxidized per the standard pyrite oxidation stoichiometry. The supplemental testing is flexible and the mineralogy of the post test humidity cell solids would be analyzed if a need is identified. Humidity cell test parameter curves will first be used to establish the approximate end point (i.e., 30, 40, 50 weeks) followed by mineralogical analysis of the substrate.

Kinetic tests results would be submitted to BLM and any participating entities weekly for joint evaluation. When BLM and Newmont representatives in consultation with participating entities are in agreement that operation of a humidity cell or cells can cease, a written acknowledgement of the decision would be prepared by BLM. Decision criteria for cessation of humidity cell tests are described below. Cells that require further testing would be run for an additional 10 weeks with an update to BLM and participating agencies after 40 weeks. This process would be repeated until agreement has been reached on results from all cells.

5.2.2 Kinetic Test Decision Criteria

BLM and Newmont will use humidity cell test (HCT) results to determine the long-term acid producing potential of waste rock and relate Nevada modified Sobek and NCV values to observed long-term acid producing potential within samples grouped by lithology and alteration. BLM , Newmont, and participating entities will verify the following preliminary general criteria. More detailed criteria will be developed in the Supplemental Waste Rock Characterization Plan and updated as results from the humidity cell tests are analyzed.

- HCT samples with a net cumulative alkalinity <0 mg/kg and pH ≤ 5 would be considered PAG material.

- HCT samples with a net cumulative alkalinity ≥ 0 or pH >5 would be evaluated using cumulative net alkalinity, percent sulfide sulfur leached, percent carbonate carbon leached, pH, and mineralogy (if needed). HCT samples with pH values greater than 7, large net cumulative alkalinity, and low weekly acidity production would be considered non-PAG if the overall depletion rates of sulfide sulfur and carbonate carbon indicates a stable long term trend is in place. Ranking a test cell result as having "large net cumulative alkalinity" or "low net cumulative acidity" is dependent on the mass balance of sulfate and carbonate for individual test cells.

- Ca/Mg total content/mineral vs. dissolution rate would be considered. Calculations and ratios will be provided to be indicative of a long-term trend.

- HCT samples with pH values between 5 and 7, low net cumulative alkalinity, and weak acidity production would be considered non-PAG if the overall depletion rates of sulfide sulfur and carbonate carbon indicate a stable long term trend is in place (EPA 2003). The ratio of weekly alkalinity to weekly acidity would be evaluated to detect trends in the long term release rates and in combination with percent sulfide sulfur leached and percent carbonate carbon leached to project long term trends.

- Based on the mineralogy of the initial test sample and ABA results, the sulfide sulfur content would be converted to available acidity and carbonate carbon would be converted to available alkalinity. These values would be used to track depletion of sulfide and carbonate. This information, combined with the mineralogy data, would be used for making decisions on termination of HCT tests.

- Long term behavior of individual HCT cells may also be assessed based on mineralogical analysis of targeted HCT solids, after the humidity cell test is terminated, to support conclusions regarding individual HCT results. Mineralogy of weathered HCT solids would provide information regarding mineral consumption and pyrite mineral properties contributing to observed acidity release rates (e.g., pyrite particles encapsulated within secondary mineral oxidation rinds.

5.3 ADAPTIVE WASTE ROCK MANAGEMENT

Based on results of the SWRC studies outlined in Section 5.2.1 and 5.2.2, the BLM and Newmont in consultation with participating entities will determine the need for adjustment to the PAG management program for the Genesis Project and/or implementation of a revised management scheme. Any lateral expansion of a pre-2003 facility footprint must be designed, constructed, and monitored in accordance with the Newmont Mining Corporation Refractory Ore Stockpile and Waste Rock Dump Design, Construction, and Monitoring Plan (Newmont 2003) and provisions in the POO and Record of Decision.

Based on the existing geochemistry information developed for the Genesis Project and assuming that results of the supplemental studies do not confirm prior geochemistry work, the primary issue that could need redress in terms of PAG waste rock management at the Genesis Project is the total volume of PAG rock that will be produced and the adjustment in capacity and/or location of encapsulation cells needed to accommodate the change in volume.

For purposes of identifying engineering responses to possible SWRC study results, the following PAG management actions are described with the specific mechanism that would trigger implementation of the method. All management actions described in this section are located within the proposed disturbance boundary.

Should SWRC results indicate an additional amount of PAG waste rock would require management during the life of the Genesis Project, the actual sequence of waste rock management in terms of which PAG encapsulation cell would receive PAG waste rock and the timing of placement is unknown. The uncertainty arises from the timing of when the SWRC results become available, which waste rock is to be reclassified, and where the reclassified waste rock is located throughout the mine pit development.

However, analysis of the tonnage of potentially reclassifiable rock, as well as encapsulating waste rock concludes there is adequate capacity for properly encapsulating PAG under the adaptive management actions described below.

Under the current PAG management plan included in the POO, the maximum exposure of PAG waste rock that would occur during the life of the Genesis Project would be 25 acres. The maximum acreage of open PAG cell that could occur during waste rock placement under Adaptive Management Plan actions described below is 50 acres.

5.3.1 Current PAG Management

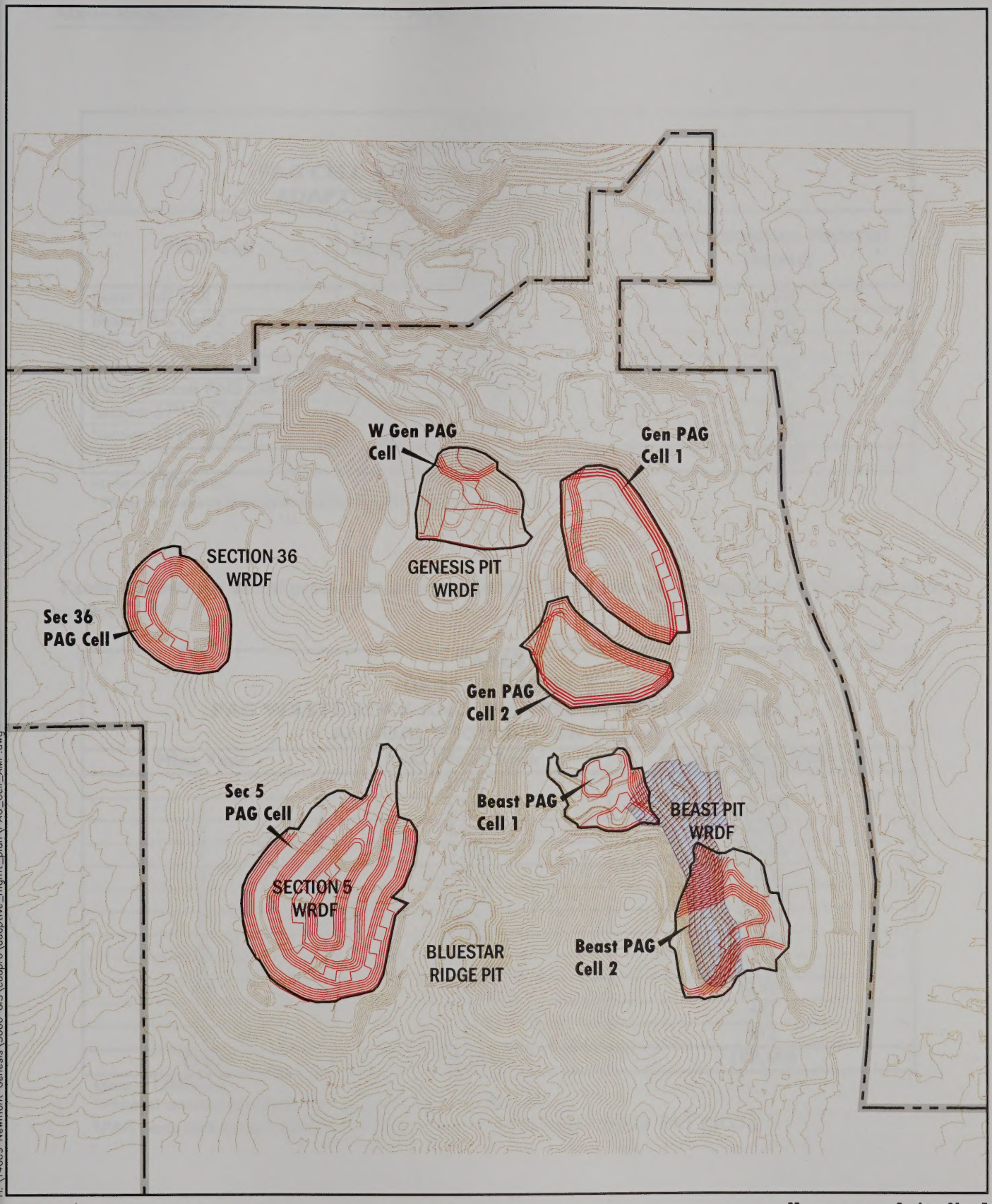
As described previously, the predicted volume of PAG that would be encapsulated due to mining in the Genesis Project is 28Mt based on waste rock with NCV of less than 0.0 percent CO_2. PAG placement and encapsulation is summarized in Section 4.0 of the AMP. A detailed description is included in the Genesis Project Waste Rock Management Plan (Newmont 2009).

5.3.2 Adaptive Management Action No.1

SWRC Value: 28Mt – 128Mt of PAG: This range of PAG tonnage would include up to an additional 100Mt of waste rock classified as PAG determined from SWRC results if all waste rock with NCV between 0.0 and 0.26 %CO_2 (0 and 5.9 T/kT $CaCO_3$) is reclassified as PAG plus the original 28Mt of PAG waste rock calculated in the Genesis Project POO.

Engineered Response: Encapsulation of this volume of PAG waste rock would require expansion to all 7 proposed PAG waste rock encapsulation cells included in the Genesis Project. **Figure 2** identifies the footprint of the expanded PAG encapsulation cells. PAG encapsulation cells would increase in aerial extent and thickness. Expansion of proposed encapsulation cells under this Management Action would result in all PAG waste rock being located above the rebounded water table in all cell locations.

Management of PAG under this Management Action would be similar to that proposed for the Genesis Project. The amount of Encapsulation Material (ANP/AGP ratio of 3:1) that would be needed to meet the encapsulation criteria of a minimum 10-foot thick layer on the top, sides, and bottom of each cell under this Management Action is 17.3 Mt (**Table 1**). Preparation of limestone benches in backfilled pits (Beast, Bluestar, and Genesis pits) is described in Section 4.2.



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Management Action No. 1

N

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Genesis-Bluestar Operations Area

Year One Waste Rock Placement (Managed as PAG)

AMEC Geomatrix

PAG Cell Locations
Adaptive Management Plan
Genesis Project
Eureka County, Nevada
FIGURE 2

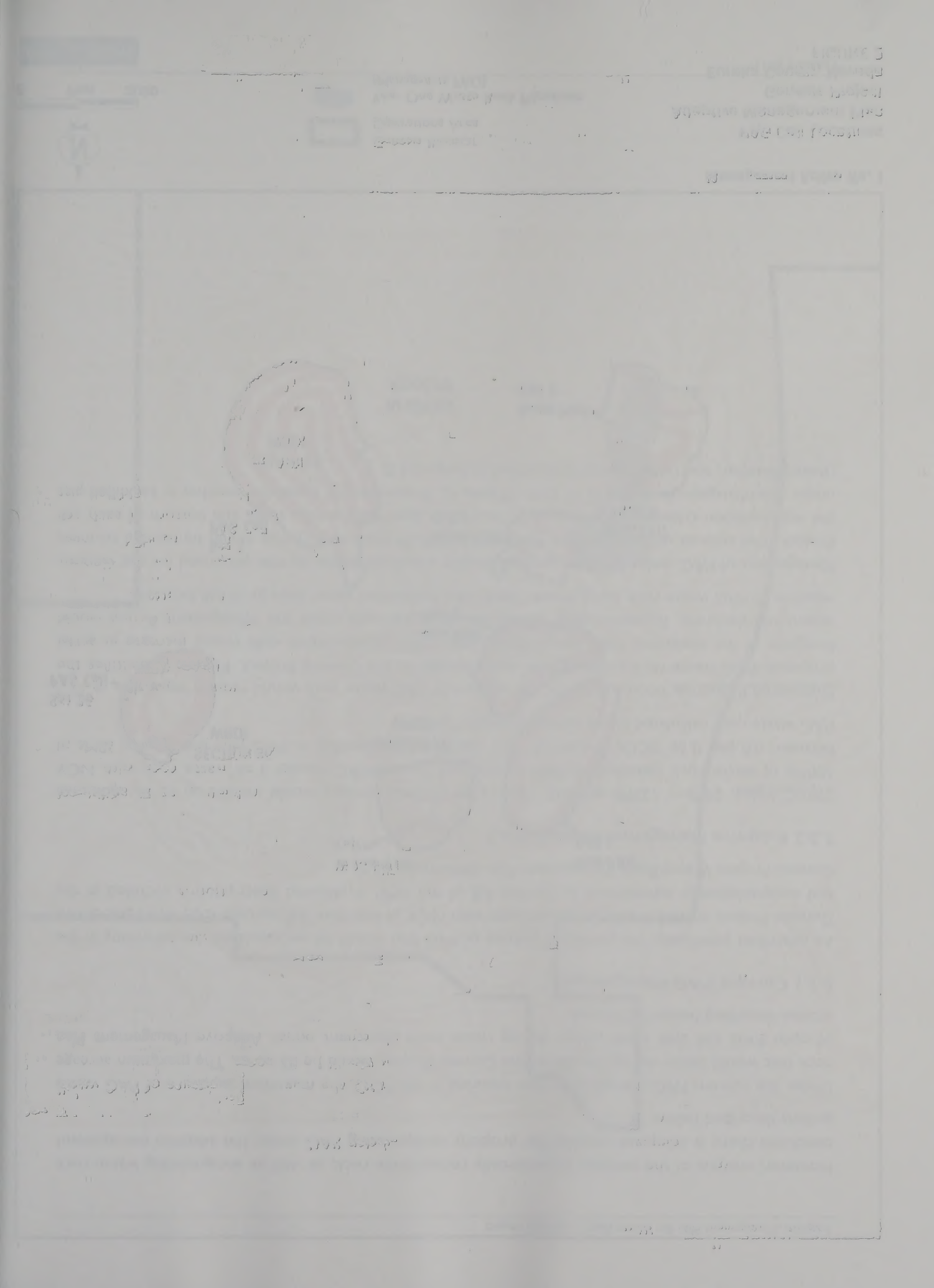

TABLE 1 GENESIS PROJECT PAG CELL AND ENCAPSULATION MATERIAL ADAPTIVE MANAGEMENT ACTION NO. 1[1]		
PAG Cell	**PAG Waste Rock Encapsulation Cell Capacity[1] (ktons)**	**Encapsulation Material (ktons)**
Beast PAG Cell 1	4,600	1,600
Beast PAG Cell 2	26,000	3,500
Genesis PAG Cell 1	18,800	3,300
Genesis PAG Cell 2	11,900	2,200
West Genesis PAG Cell	5,000	973
Section 5 PAG Cell	57,400	3,700
Section 36 PAG Cell	14,900	2,000
Total	**138,600**	**17,300**

ktons = 1,000 tons.

[1] Material amounts have been rounded to the nearest 1,000 tons.

Table 2 shows the annual production of Encapsulation Material versus the amount of PAG waste rock produced.

TABLE 2 GENESIS PROJECT PAG WASTE ROCK AND ENCAPSULATION MATERIAL ANNUAL PRODUCTION (ktons)[1]		
Mine Year	**PAG Waste Rock[2]**	**Encapsulation Material**
1	2,400	11,000
2	3,700	20,700
3	8,400	16,100
4	11,300	24,600
5	19,970	9,800
6	19,100	12,400
7	13,600	23,500
8	10,500	39,100
9	21,000	19,000
10	14,800	10,900
11	1,700	447
12	938	892
Total	**127,600**	**188,400**

ktons = 1,000 tons.

[1] Material amounts have been rounded to the nearest 1,000 tons.

[2] PAG waste rock amount based on material with NCV less than 0.26% CO_2 (5,9 T/kT $CaCO_3$).

5.3.3 Adaptive Management Action No. 2

If the SWRC tests result in an amount of PAG that exceeds the amounts associated with Adaptive Management Action No. 1 outlined above (128Mt of PAG waste rock), BLM will require Newmont to submit a Plan of Operations amendment and updated Reclamation Cost Estimate for the project.

6.0 WASTE ROCK MANAGEMENT MONITORING PROGRAM REVIEW

In conjunction with selection of a Waste Rock Management Action under **Section 4.2**, the BLM and NDEP would review the existing WRMP for the Genesis Project to determine whether any adjustments or modifications are warranted, amend the POO and WRMP as necessary, and conduct the appropriate level of review under 43 CFR 3809, (NAC) 445A.350-NAC 445A.447 and (NAC) 519A.010 - NAC 519A.415, (NRS) 445A.300-NRS and NEPA. The focus of the review would be on adequacy of the program to measure PAG rock, monitor management, reporting to agencies and ensure the monitoring protocols in the WRMP are sufficient to meet future monitoring needs for the Project.

7.0 PERFORMANCE REVIEW

BLM and Newmont, in consultation with participating entities, would review the performance of the waste rock testing, reporting results, and implementation of all phases of the AMP. Newmont would provide quarterly reports in accordance with reporting requirements of the WRMP including accomplishments and attainment of goals as listed under **Section 2.0** – Objectives. Agency meetings with Newmont would be conducted as necessary to discuss report findings, review future work and schedules for the AMP, determine additions or modifications to the AMP, amendments to the POO and the level of NEPA as necessary.

8.0 REFERENCES

Bureau of Land Management. 2010. Nevada BLM Rock Characterization and Water Resources Analysis Guidance for Mining Activities. IM-NV-2010-014.

Environmental Protection Agency. 2002. EPA and Hardrock Mining: A Source Book for Industry in the Northwest and Alaska. EPA Region 10. Seattle, Washington, January 2003.

Geomega, Inc. 2008. Geochemical Characterization of the Genesis Project: Proposed Action. Prepared for Newmont Mining Corporation, Carlin, Nevada. November 6, 2008.

Newmont Mining Corporation (Newmont). 1995. Refractory Ore Stockpile and Waste Rock Dump Design, Construction, and Monitoring Plan. October.

_____**2003.** Refractory Ore Stockpile and Waste Rock Dump Design, Construction, and Monitoring Plan. January.

_____**2007.** Genesis Project Plan of Operations - Revised. November 5, 2007.

_____**2009.** Genesis Project, Waste Rock Management Plan. October 2009.

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